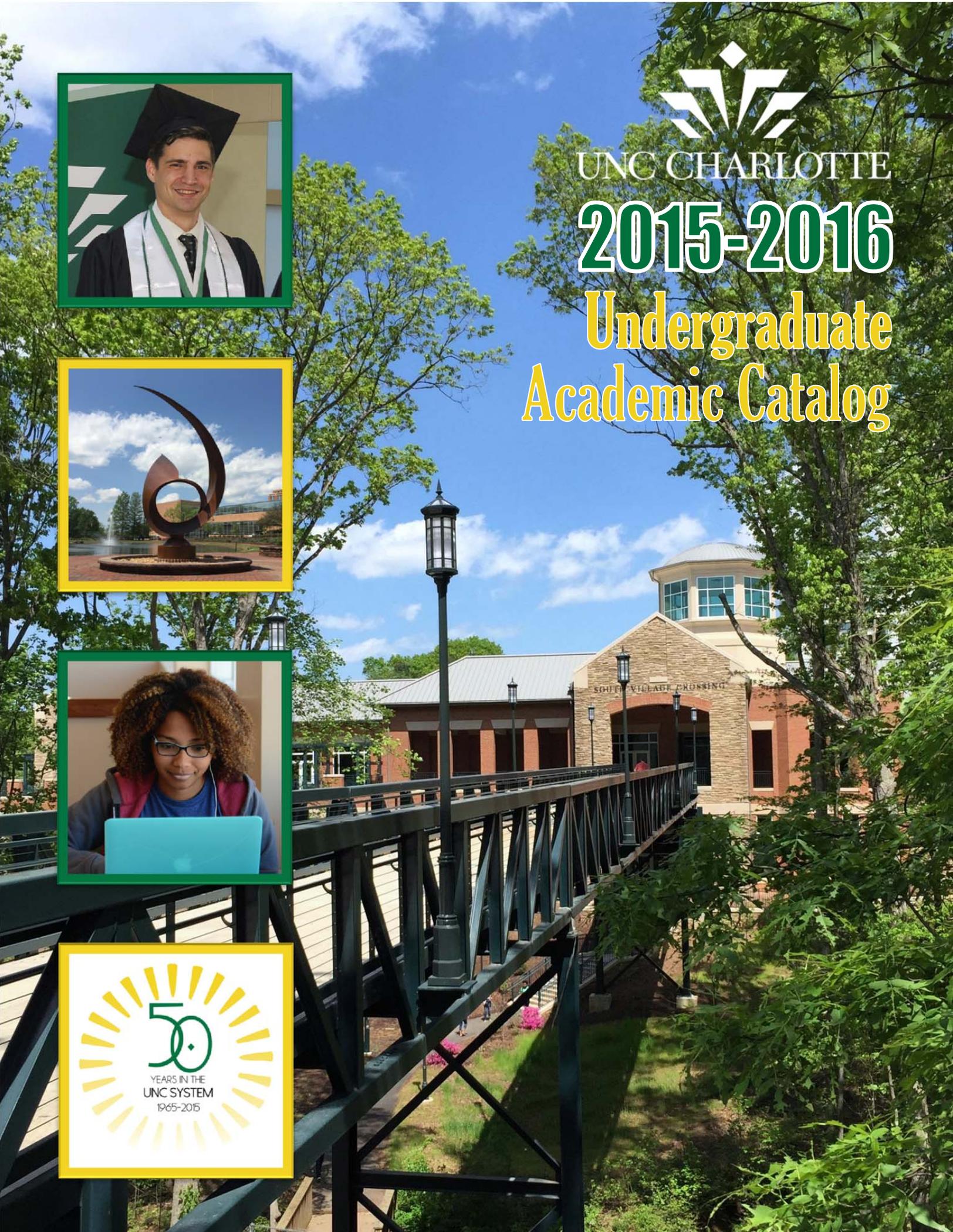




UNC CHARLOTTE

2015-2016

Undergraduate  
Academic Catalog



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# Phone Numbers and Address

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If, after reading this *Catalog*, students have further questions or specific inquiries about the programs of, or admission to, The University of North Carolina at Charlotte, they may look below to find the proper office to contact. Correspondence may be addressed to any of the offices by following this format:

The University of North Carolina at Charlotte  
Attn: *Department or College*  
9201 University City Boulevard  
Charlotte, NC 28223-0001

---

## Information

<b>Campus Operator/Switchboard</b> .....	<b>704-687-8622 (UNCC)</b>
Academic Affairs .....	704-687-5717
Academic Services .....	704-687-7227
Admissions	
Undergraduate.....	704-687-5507
Graduate.....	704-687-5503
International.....	704-687-5503
Summer School .....	704-687-1283
Adult Students and Evening Services .....	704-687-5104
Advising Center .....	704-687-7717
Athletics .....	704-687-1054
Bookstore.....	704-687-7050
Colleges	
Arts + Architecture .....	704-687-0100
Business.....	704-687-7577
Computing and Informatics .....	704-687-8450
Education .....	704-687-8722
Engineering.....	704-687-8244
Graduate School .....	704-687-5503
Health and Human Services.....	704-687-8374
Honors College.....	704-687-7197
Liberal Arts & Sciences .....	704-687-0088
University College.....	704-687-5630
Continuing Education.....	704-687-8900
Counseling Center .....	704-687-0311
Dean of Students .....	704-687-0345
Dining Services and Meal Plans .....	704-687-7337
Disability Services .....	704-687-0040
Distance Education.....	704-687-1285
Financial Aid .....	704-687-5504
Health Center .....	704-687-7400
Housing and Residence Life .....	704-687-7501
ID Office .....	704-687-7337
International Programs.....	704-687-7755
Library.....	704-687-0494
Parking and Transportation Services .....	704-687-0161
Recreational Services.....	704-687-0430
Registrar.....	704-687-5505
Scholarship Office.....	704-687-5871
Student Accounts .....	704-687-5506
Student Activities/Student Union .....	704-687-7100
University Career Center .....	704-687-0795
University Center for Academic Excellence.....	704-687-7837

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## Emergency Numbers

Campus Police -- Emergency .....	704-687-2200 or 911
-- Non-Emergency .....	704-687-8300
Inclement Weather Hotline.....	704-687-1900

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# Acknowledgements

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This *Catalog* was prepared and published by the Office of Academic Affairs in June 2015. Its goal is to provide a comprehensive, accurate, and useful catalog, which fully describes the academic programs, policies, regulations, and requirements of the University.

Although the publisher of this *Catalog* has made every reasonable effort to attain factual accuracy herein, no responsibility is assumed for editorial, clerical or printing errors, or errors occasioned by mistakes. The publisher has attempted to present information that, at the time of preparation for printing, most accurately describes the course offerings, faculty listings, policies, procedures, regulations, and requirements of the University. However, it does not establish contractual relations. The University reserves the right to alter or change any statement contained herein without prior notice.

We request that omissions and inaccuracies be brought to the attention of the Editor, as well as any suggestions and comments on the presentation and content.

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### Cover

*Cover Design by Eric A. Klee*

*50 Years Logo Design by Dakota T. Rose, UNC Charlotte  
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### Cover Photos:

*South Village Crossing (opened Spring 2015) and  
"Aperture" sculpture (installed Spring 2015) by  
Eric A. Klee*

*Student Photos by Wade Bruton, University  
Photographer, and Alexandra Lay, UNC Charlotte  
Graduate ('15), B.F.A. in Art*

### Publication Information

*Type: Trade Gothic Light, Linotype Family*

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# UNC CHARLOTTE

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The University of North Carolina at Charlotte

Undergraduate Catalog  
2015-2016  
Vol. XXXVIII

<http://catalog.uncc.edu>

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*The University of North Carolina at Charlotte is open to people of all races and is committed to equality of educational opportunity and does not discriminate against applicants, students, or employees based on race, color, national origin, religion, sex, sexual orientation, age, or disability.*

UNC CHARLOTTE ♦ 9201 UNIVERSITY CITY BOULEVARD ♦ CHARLOTTE, NC 28223  
[www.uncc.edu](http://www.uncc.edu)





Dear Students,

Welcome to UNC Charlotte, North Carolina's urban research institution. This is an exciting chapter of your lives, and UNC Charlotte is committed to the prospect of your success. As you endeavor to complete your undergraduate or graduate degree program, UNC Charlotte's dedicated faculty and staff are your partners. Their expertise and support, along with the many University resources and services available to you, will enable you to meet your scholastic, personal, and professional aspirations.

In joining the Niner Nation, you become part of a community in which students, faculty, and staff work collaboratively on efforts to tackle the needs of the greater Charlotte region. We have a stake in the quality of life of the citizens of the communities we serve, so we constantly are pioneering new ways to drive economic growth and address the region's environmental, health, and social needs.

We know that college is more than textbooks and classes, so we encourage you to become actively engaged on campus. Explore all the possibilities available – study abroad offerings for greater global awareness; leadership and volunteer opportunities; cultural events and lectures; intramural sports; and, of course, we want to see you cheering on your Charlotte 49er athletic teams wherever they might be competing.

In the not-too-distant future, the city's light rail expansion onto campus will provide a quick, convenient avenue to UNC Charlotte Center City, situated in the heart of Uptown Charlotte. This facility is a hub for a number of our graduate programs, and its location provides the University a place to convene influential civic, business, and community leaders around thought-provoking topics. Access to these leaders, and connections you may establish with them, could prove valuable to your educational pursuits and career prospects.

Again, welcome! We are delighted you've selected UNC Charlotte as your university. Go Niners!

Cordially,

Philip L. Dubois  
Chancellor



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If this is your first year at UNC Charlotte, welcome to our great campus! If you are returning, we are pleased to welcome you back.

Our University is constantly changing, and you are a part of that change. Because we are situated in a complex, dynamic city, our institution is alive with possibilities to learn and grow. Our distinguished faculty are here to provide you with a quality education that will open doors for you. If we do our job right, your education will be intellectually challenging. If you do your job right, these years at UNC Charlotte will lay the groundwork for a promising and satisfying future.

Remember, too, that there is more to the collegiate experience than coursework. I encourage you to become involved in some of the many activities or student organizations that are available to you. You will build friendships and relationships with both your fellow students and our faculty that you will take with you and cherish as you move on through the years.

I hope you will take advantage of the world-class resources available here, and explore all that our campus has to offer. But do not stop there; explore research, community engagement, and professional development opportunities in the greater Charlotte area and in the world beyond. We're here to help you get started.

We are pleased that you have chosen UNC Charlotte. As we continue to grow, we look forward to your continuing to grow with us as a person, scholar, and future alumnus/alumna.

Sincerely,

Joan F. Lorden  
Provost and Vice Chancellor for Academic Affairs



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# Academic Calendar

## 2015-2016

UNC Charlotte's academic year is divided into three terms: Fall, Spring, and Summer.

### FALL 2015

Aug 15	Academic year begins
Aug 24	Day of Convocation
Aug 24	First day of classes
Aug 29	First day for Saturday classes
Sep 5	No Saturday classes
Sep 7	HOLIDAY: Labor Day
Oct 12-13	Fall Recess
Nov 2	Registration for Spring 2016 begins
Nov 25-28	HOLIDAY: Thanksgiving
Dec 9	Last day of classes
Dec 10	Reading day
Dec 11-18	Final examinations*
Dec 19	Fall Commencement

### SPRING 2016

Jan 11	First day of classes
Jan 16	First day for Saturday classes
Jan 18	HOLIDAY: M.L. King, Jr. Day
Mar 7-12	Spring Break
Mar 21	Registration for Summer 2016 and Fall 2016 begins
Apr 25-26	Spring Recess
Apr 30	Final examinations for Saturday classes
May 3	Last day of classes
May 4	Reading day
May 5-12	Final examinations*
May 13-14	Spring Commencement
May 16	Academic year ends

### SUMMER 2016

May 23 - Jun 29	First Summer Term**
May 23 - Aug 10	Extended Summer Term**
May 30	HOLIDAY: Memorial Day
Jun 30 - Jul 1	No classes
Jul 4	HOLIDAY: Independence Day
Jul 5 - Aug 10	Second Summer Term**

\*Common Examinations held on the first day of exams.

\*\*Dates include final examinations.

**Please note:** All dates are subject to change. No classes are held on the above noted holiday dates. A complete list of dates and deadlines is available online from the Office of the Registrar at [registrar.uncc.edu/calendar](http://registrar.uncc.edu/calendar). Please check this site for the most current information.

### AUGUST 2015

S	M	T	W	Th	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

### SEPTEMBER 2015

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

### OCTOBER 2015

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

### NOVEMBER 2015

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

### DECEMBER 2015

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

### JANUARY 2016

S	M	T	W	Th	F	S
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

### FEBRUARY 2016

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

### MARCH 2016

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

### APRIL 2016

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

### MAY 2016

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

### JUNE 2016

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

### JULY 2016

S	M	T	W	Th	F	S
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

# *Introduction* to the Catalog



# Introduction to the Catalog

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## Reader's Guide to the Catalog

The *University of North Carolina at Charlotte Undergraduate Catalog* (hereby referred to as the “*Catalog*”) is published annually every Spring for the following academic year, which begins in the Fall. It is also available online at [catalog.uncc.edu](http://catalog.uncc.edu).

This *Catalog* is divided into three sections. The first section contains student information about attending the University, such as the academic calendar, the degree programs offered, admission, student conduct, degree requirements and academic policies, and financial information, including tuition and fees and financial aid.

The second (or curriculum) section describes the University's academic programs in detail. The section is organized in alphabetical order by the seven academic colleges, followed by each individual department or program, plus University College and the Honors College. The section ends with an alphabetical listing of all courses offered.

The third and final section contains information about student life on campus, academic resources, and student services, as well as a faculty directory and glossary of higher education terminology. Rounding out this section is an index, which is helpful in locating a topic quickly.

---

## What's New This Year

2015 celebrates the 50th anniversary of UNC Charlotte as the 4th campus in the UNC system, as well as the 30th anniversary of UNC Charlotte's Graduate School.

**New undergraduate degrees and programs that appear for the first time in this *Catalog* include:**

- Minor in Chinese
- Minor in International Management
- Early Entry Program for the M.S. in Information Technology

**Major changes to existing undergraduate degree programs include:**

- Concentration in Applied Energy added to the BSET in Electrical Engineering Technology
- Concentration in Biomedical Engineering added to the B.S. in Mechanical Engineering
- Concentration in Business Analytics added to the B.S. in Business Administration (B.S.B.A.)
- Concentrations in Business Intelligence and Analytics and Systems Analysis added to the B.S.B.A. in Management Information Systems
- Concentration in Medical Technology discontinued for the B.A. in Chemistry
- Honors programs added to all majors within the Department of Kinesiology: Athletic Training, Exercise Science, Neurodiagnostic and Sleep Science, and Respiratory Therapy
- Minor in Islamic Studies is no longer offered
- Minor in Judaic Studies is no longer offered

**Additional changes include:**

- The Department of Social Work has been renamed the School of Social Work
- MATH 1340 and MATH 1341 have been added as Mathematical and Logical Reasoning options to the General Education Program
- PHYS 1100 and its corresponding lab, PHYS 1100L, have been added as Natural Science options to the General Education Program



- The Associate Degree Rule and Two-Year Rule for readmission purposes have been combined into one new Forgiveness Policy

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## Catalog Policies and Disclaimers

The *UNC Charlotte Undergraduate Catalog* is not an irrevocable contract. Regulations published in it are subject to change by the University at any time without notice. University regulations are policy statements to guide students, faculty, and administrative officers in achieving the goals of the institution. Necessary interpretations of these policies will be made by the appropriate authorities with the interest of the students and the institution in mind. Students are encouraged to consult an advisor if they have questions about the application of any policy.

The University reserves the right to change any of the rules and regulations of the University at any time, including those relating to admission, instruction, and graduation. The University also reserves the right to withdraw curricula and specific courses, alter course content, change the calendar, and to impose or increase fees. All such changes are effective as proper authorities determine and may apply not only to prospective students, but also to those who are already enrolled in the University.

The requirements specified in this *Catalog* apply to students who commence their studies at UNC Charlotte during the 2015-2016 academic year and who remain in continuous enrollment at the institution until they graduate. If requirements are changed, students may elect to comply with the new requirements or to remain under the requirements by which they are governed at the time of the change. The choice to apply the new requirements must be declared by students at least one semester prior to graduation through their academic departments.

Students who change their major/minor are bound by the requirements of their new major/minor that are in effect the semester they officially begin studies in the new program.

Students who are readmitted to the University are bound by the program and degree requirements in force at the time of readmission.

Exceptions to these policies may be necessitated by changes in course offerings, degree programs, or by action of authorities higher than the University. In that event, every effort will be made to avoid penalizing the student.

---

## Student Responsibility

Each student is responsible for the proper completion of his or her academic program, for familiarity with the *Catalog*, for maintaining the grade point average required, and for meeting all other degree requirements. Students assume academic and financial responsibility for the courses in which they enroll and are relieved of these responsibilities only by formally terminating enrollment. The advisor will counsel, but the final responsibility remains that of the student.

A student is required to have knowledge of and observe all regulations pertaining to campus life and student behavior. Students are encouraged to familiarize themselves with academic terminology located in the Glossary section of this *Catalog*.

Email is the official form of communication at the University; each student is responsible for checking their uncc.edu email regularly, as well as maintaining communication with the University and keeping a current address and telephone number on file with the Office of the Registrar.

While associated with the University, each student is expected to participate in campus and community life in a manner that will reflect credibly upon the student and the University. The University has enacted two codes of student responsibility -- **The UNC Charlotte Code of Student Academic Integrity** and **The UNC Charlotte Code of Student Responsibility** -- which are summarized in this *Catalog* and available in full online at [legal.uncc.edu/policies/chapter-400](http://legal.uncc.edu/policies/chapter-400). As students willingly accept the benefits of membership in the UNC Charlotte academic community, they acquire obligations to observe and uphold the principles and standards that define the terms of UNC Charlotte community cooperation and make those benefits possible. This includes completion of institutional surveys as requested by the University for program assessment and improvement.

# Academic Programs



# Academic Programs

College and Program	Degree/Certification Awarded		
	Bachelor's	Minor	Undergraduate Certificate
<b><i>College of Arts + Architecture</i></b>			
Architecture	BA, BArch		
Art	BA, BFA		
Art History	BA	✓	
Dance	BA	✓	✓
Jazz			✓
Music	BA, BM	✓	
Theatre	BA	✓	
<b><i>Belk College of Business</i></b>			
Accounting	BS		
Business Administration	BSBA		
Economics	BS	✓	
Finance	BSBA		
International Business	BSBA		
International Management		✓	
Management	BSBA		
Management Information Systems	BSBA	✓	
Marketing	BSBA		
Operations and Supply Chains Management	BSBA	✓	
<b><i>College of Computing and Informatics</i></b>			
Bioinformatics and Genomics		✓	
Computer Science	BA, BS	✓	
Game Design and Development			✓
Software and Information Systems		✓	
<b><i>College of Education</i></b>			
Child and Family Development		✓	
Elementary Education	BA		
Foreign Language Education (K-12)		✓	
Middle Grades Education	BA		
Reading Education		✓	
Secondary Education		✓	
Special Education – Adapted Curriculum	BA		
Special Education – General Curriculum	BA		
Special Education – Elementary Education (dual)	BA		
Teaching English as a Second Language		✓	
Urban Youth and Communities		✓	

College and Program	Degree/Certification Awarded		
	Bachelor's	Minor	Undergraduate Certificate
<b><i>The William States Lee College of Engineering</i></b>			
<i>Engineering</i>			
Civil Engineering	BSCE		
Computer Engineering	BSCpE	✓	
Electrical Engineering	BSEE	✓	
Mechanical Engineering	BSME		
Systems Engineering	BSSE		
<i>Engineering Technology</i>			
Civil	BSET		
Construction Management	BSCM		
Electrical	BSET		
Fire Safety	BSET		
Mechanical	BSET		
<b><i>College of Health and Human Services</i></b>			
Athletic Training	BS		
Exercise Science	BS		
Neurodiagnostics and Sleep Science	BS		
Nursing	BSN		
Outdoor Adventure Leadership		✓	
Public Health	BSPH	✓	
Respiratory Therapy	BSRT		
Social Work	BSW		
<b><i>College of Liberal Arts &amp; Sciences</i></b>			
Actuarial Mathematics		✓	
Aerospace Studies		✓	
Africana Studies	BA	✓	
Anthropology	BA	✓	
American Studies		✓	
Applied Anthropology		✓	
Biology	BA, BS	✓	
Biotechnology		✓	
Business Languages (French, German, Spanish)			✓
Chemistry	BA, BS	✓	
Chemistry Education (K-12)	BA		
Chemistry - Medical Technology	BA		
Children's Literature and Childhood Studies		✓	
Chinese		✓	
Classical Studies		✓	
Cognitive Science		✓	
Communication Studies	BA	✓	
Criminal Justice	BA	✓	
Diverse Literatures and Cultural Studies		✓	
Earth and Environmental Sciences	BS	✓	
English	BA	✓	
English Education (K-12)	BA		
Environmental Studies	BA	✓	
Film Studies		✓	
Francophone Studies		✓	

College and Program	Degree/Certification Awarded		
	Bachelor's	Minor	Undergraduate Certificate
<i>College of Liberal Arts &amp; Sciences (continued)</i>			
French	BA	✓	
French Education (K-12)	BA		
Geography	BA, BS	✓	
Geology	BS	✓	
German	BA	✓	
German Education (K-12)	BA		
Gerontology		✓	
History	BA	✓	
History Education (K-12)	BA		
Holocaust, Genocide, and Human Rights Studies		✓	
Humanities, Technology, and Science		✓	
International Public Relations			✓
International Studies	BA	✓	
Italian		✓	
Japanese	BA	✓	
Journalism		✓	
Latin American Studies	BA	✓	
Leadership Studies			✓
Linguistics		✓	
Mathematics	BA, BS	✓	
Mathematics Education (K-12)	BA, BS		
Mathematics for Business	BA, BS		
Meteorology	BS		
Military Science		✓	
Philosophy	BA	✓	
Physics	BA, BS	✓	
Political Science	BA	✓	
Psychology	BS	✓	
Religious Studies	BA	✓	
Russian		✓	
Sociology	BA	✓	
Spanish	BA	✓	
Spanish Education (K-12)	BA		
Statistics		✓	
Technical and Professional Writing		✓	
Translating			✓
Urban Studies		✓	
Women's and Gender Studies		✓	

# About the University



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# University of North Carolina

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[www.northcarolina.edu](http://www.northcarolina.edu)

## History

In North Carolina, all the public educational institutions that grant baccalaureate degrees are part of the University of North Carolina. The multi-campus state university encompasses 16 such institutions, as well as the NC School of Science and Mathematics, the nation's first public residential high school for gifted students. Chartered by the North Carolina General Assembly in 1789, the University of North Carolina was the first public university in the United States to open its doors and the only one to graduate students in the eighteenth century. The first class was admitted in Chapel Hill in 1795. For the next 136 years, the only campus of the University of North Carolina was at Chapel Hill.

Additional institutions of higher education, diverse in origin and purpose, began to win sponsorship from the General Assembly beginning as early as 1877. Five were historically black institutions, and another was founded to educate American Indians. Some began as high schools. Several were created to prepare teachers for the public schools. Others had a technological emphasis. One is a training school for performing artists.

The 1931 session of the General Assembly redefined the University of North Carolina to include three state-supported institutions: the campus at Chapel Hill (now the University of North Carolina at Chapel Hill), North Carolina State College (now North Carolina State University at Raleigh), and Woman's College (now the University of North Carolina at Greensboro). The new multi-campus University operated with one board of trustees and one president. By 1969, three additional campuses had joined the University through legislative action: the University of North Carolina at Charlotte, the University of North Carolina at Asheville, and the University of North Carolina at Wilmington.

In 1971, legislation was passed bringing into the University of North Carolina the state's ten remaining public senior institutions, each of which had until then been legally separate: Appalachian State University, East Carolina University, Elizabeth City State University, Fayetteville State University, North Carolina Agricultural and Technical State University, North Carolina Central University, the North Carolina School of the Arts (now the University of North Carolina School of the Arts), Pembroke State University (now the University of North

Carolina at Pembroke), Western Carolina University, and Winston-Salem State University. In 1985, the NC School of Science and Mathematics was declared an affiliated school of the University; in July 2007, NCSSM by legislative action became a constituent institution of the University of North Carolina. All the schools and universities welcome students of both sexes and all races.

## Board of Governors

The UNC Board of Governors is the policy-making body legally charged with "the general determination, control, supervision, management, and governance of all affairs of the constituent institutions." The 32 voting members of the Board of Governors are elected by the General Assembly for four-year terms. Former board chairmen and board members who are former governors of North Carolina may continue to serve for limited periods as non-voting members emeriti. The president of the UNC Association of Student Governments or that student's designee is also a non-voting member.

## President & General Administration

The chief executive officer of the University is the president. The president is elected by and reports to the Board of Governors. The President's office is the operations level between the constituent institutions and the Board of Governors. The President has complete authority to manage the affairs and execute the policies of the University of North Carolina and its constituent institutions, subject to the direction and control of the Board of Governors.

## Chancellors

Each of the UNC campuses is headed by a chancellor who is chosen by the Board of Governors on the president's nomination and is responsible to the president.

## Board of Trustees

Each university has a board of trustees consisting of eight members elected by the Board of Governors, four appointed by the governor, and the president of the student body, who serves ex officio. (The UNC School of the Arts has two additional ex officio members; and the NC School of Science and Mathematics has a 27-member board as required by law.) Each board of trustees holds extensive powers over academic and other operations of its campus on delegation from the Board of Governors.

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# History of the University of North Carolina at Charlotte

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[www.uncc.edu](http://www.uncc.edu)

UNC Charlotte is one of a generation of universities founded in metropolitan areas of the United States immediately after World War II in response to rising education demands generated by the war and its technology.

To serve returning veterans, North Carolina opened 14 evening college centers in communities across the state. The Charlotte Center opened Sept. 23, 1946, offering evening classes to 278 freshmen and sophomore students in the facilities of Charlotte's Central High School. After three years, the state closed the centers, declaring that on-campus facilities were sufficient to meet the needs of returning veterans and recent high school graduates.



Charlotte's education and business leaders, long aware of the area's unmet needs for higher education, moved to have the Charlotte Center taken over by the city school district and operated as Charlotte College, offering the first two years of college courses. Later the same leaders asked Charlotte voters to approve a two-cent tax to support that college.

Charlotte College drew students from the city, Mecklenburg County and from a dozen surrounding counties. The two-cent tax was later extended to all of Mecklenburg County. Ultimately financial support for the college became a responsibility of the State of North Carolina.

As soon as Charlotte College was firmly established, efforts were launched to give it a campus of its own. With the backing of Charlotte business leaders and legislators from Mecklenburg and surrounding counties, land was acquired on the northern fringe of the city and bonds were passed to finance new

facilities. In 1961, Charlotte College moved its growing student body into two new buildings on what was to become a 1,000-acre campus 10 miles from downtown Charlotte.



Three years later, the North Carolina legislature approved bills making Charlotte College a four-year, state-supported college. The next year, 1965, the legislature approved bills creating the University of North Carolina at Charlotte, the fourth campus of the statewide university system. In 1969, the University began offering programs leading to master's degrees. In 1992, it was authorized to offer programs leading to doctoral degrees.

Today, with an enrollment ranking it fourth among the 17 schools in the UNC system, it is the largest public university in the greater Charlotte metropolitan region. A doctoral institution, UNC Charlotte serves the region through applied research, knowledge transfer, and engaged community service.

More than 1,000 full-time teaching faculty comprise the University's academic departments, and the 2014 Fall enrollment exceeded 27,000 students, including over 5,000 graduate students.

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## Mission, Vision, and Values of UNC Charlotte

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<http://administration.uncc.edu/university-mission-statement>

### University Mission Statement

UNC Charlotte is North Carolina's urban research university. It leverages its location in the state's largest city to offer internationally competitive programs of research and creative activity, exemplary undergraduate, graduate, and professional programs,

and a focused set of community engagement initiatives. UNC Charlotte maintains a particular commitment to addressing the cultural, economic, educational, environmental, health, and social needs of the greater Charlotte region.

## University Vision and Values

In fulfilling our mission, we envision a University that promises:

- An accessible and affordable quality education that equips students with intellectual and professional skills, ethical principles, and an international perspective.
- A strong foundation in liberal arts and opportunities for experiential education to enhance students' personal and professional growth.
- A robust intellectual environment that values social and cultural diversity, free expression, collegiality, integrity, and mutual respect.
- A safe, diverse, team-oriented, ethically responsible, and respectful workplace environment that develops the professional capacities of our faculty and staff.

To achieve a leadership position in higher education, we will:

- Rigorously assess our progress toward our institutional, academic, and administrative plans using benchmarks appropriate to the goals articulated by our programs and in our plans.
- Serve as faithful stewards of the public and private resources entrusted to us and provide effective and efficient administrative services that exceed the expectations of our diverse constituencies.
- Create meaningful collaborations among university, business, and community leaders to address issues and opportunities of the region.
- Develop an infrastructure that makes learning accessible to those on campus and in our community and supports the scholarly activities of the faculty.
- Pursue opportunities to enhance personal wellness through artistic, athletic, or recreational activities.
- Operate an attractive, environmentally responsible and sustainable campus integrated with the retail and residential neighborhoods that surround us.

*Approved by the Board of Governors on April 11, 2014.*

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# The Colleges Within UNC Charlotte

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<http://www.uncc.edu/landing/academics#colleges>

UNC Charlotte's largest academic units are its colleges. There are seven discipline-based colleges. Each consists of smaller units called schools, departments, or programs. Additionally, there are University College, the Honors College, and the Graduate School.

## College of Arts + Architecture

The College of Arts + Architecture is a community of visual and performing artists and design professionals who work in both intellectual and material practices. Through education, expertise, and leadership the College models excellence in teaching, scholarly and creative research, and performance in five creative disciplines: Architecture, Art and Art History, Dance, Music, and Theatre. The College is a vessel for curious individuals and skilled problem solvers who care about the impact of our work on people and the complex social challenges we face.

## The Belk College of Business

The Belk College of Business offers outstanding business education programs at the undergraduate, graduate, and doctoral levels. The Belk College is committed to building strong partnerships in the Greater Charlotte region and beyond as a vital part of its vision to be a leader in 21st century business research and education.

## College of Computing and Informatics

The College of Computing and Informatics is committed to being the recognized leader for competitive, innovative, and market-responsive computing and informatics education. Through this commitment, the College will continue to develop focused, trend-setting research excellence with national and international recognition, and be recognized as the leader and go-to place for partnerships and collaborations.

## College of Education

The College of Education enrolls undergraduate and graduate students in professional education programs. Its programs are nationally accredited and approved by the NC State Board of Education. Students wishing to prepare for the challenging, meaningful, and rewarding careers of Teaching, Counseling, and Educational Leadership are invited to explore the College's undergraduate and graduate programs.

## The William States Lee College of Engineering

The College of Engineering is a community of students, faculty and industry partners. Students study, design, research, and build together. From the bachelor's to the doctoral level, College of Engineering students participate in experiential, hands-on projects; learning to visualize, design, create, build, and apply.

## College of Health and Human Services

The College of Health and Human Services offers a wide range of graduate and undergraduate degree and certificate programs to prepare graduates to pursue advanced degrees, and for a variety of practice, research, and administrative roles in the health and human services fields. Its high quality, innovative educational programs include opportunities to study abroad and for distance education.

## College of Liberal Arts & Sciences

The College of Liberal Arts & Sciences is the oldest and largest college within the University. Cognizant of its history as the foundational college at UNC Charlotte, the College advances the discovery, dissemination, and application of knowledge in the traditional areas of liberal arts and sciences, and in emerging areas of study.

## Graduate School

The Graduate School was established in 1985 with the appointment of the first Dean of the Graduate School, although graduate degree programs have been offered since 1969. Today, approximately 750 members of the Graduate Faculty and approximately 5,000 graduate students participate in a broad array of graduate programs at the master's and doctoral levels and in graduate certificate programs. The Graduate School acts in cooperation with the seven discipline-based colleges.

## Honors College

The Honors College offers academically talented, enthusiastic, motivated students many of the personal and intellectual advantages of a small liberal arts college within the diversity of a large university. The Honors College is comprised of several distinct programs, each with their own standards for admission and requirements for graduation.

## University College

University College serves all undergraduate students at UNC Charlotte through the General Education program which it coordinates on behalf of and with the support

of all of the academic colleges that make up the campus community. This curriculum reflects this university's commitment to the principles of a liberal arts education, a broad training that develops analytic, problem solving, and communications skills and also awareness of bodies of knowledge and new perspectives that prepare students for success in their careers and communities in the 21st century.

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# University Structure

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UNC Charlotte is organized into four administrative divisions: Academic Affairs, Business Affairs, Student Affairs, and University Advancement. These divisions, as well as Athletics, Legal Affairs, and Internal Audit, all report to the Chancellor.

## Academic Affairs

The Division of Academic Affairs includes Academic Services; Assessment and Accreditation; Enrollment Management; Information and Technology Services; International Programs; Library; Metropolitan Studies and Extended Academic Programs; Research and Economic Development; The Graduate School; University College; and seven discipline-based colleges: the Colleges of Arts + Architecture, Business, Computing and Informatics, Education, Engineering, Health and Human Services, and Liberal Arts & Sciences.

## Business Affairs

Business Affairs plans for and provides essential human, financial, facility, and administrative support services to the University that are customer focused, results oriented, fiscally sound, and integrity bound. The Division of Business Affairs includes Business Services; Facilities Management; Financial Services; Human Resources; Internal Audit; Risk Management, Safety, and Security; and Technical Operations and Planning.

## Student Affairs

The Division of Student Affairs commits itself to the enhancement of the personal, educational, occupational, and professional development of students. The Division of Student Affairs consists of Cone University Center, Counseling Center, the Dean of Students Office, Housing and Residence Life, Recreational Services, Religious and Spiritual Life, Student Affairs Research, Multicultural Resource Center, Student Activities, Student Health Center,

Student Media, Student Union, and the Venture Program.

## University Advancement

The Division of University Advancement supports the mission of the University by cultivating alumni, community, and government support and affinity, by raising funds for scholarships and major initiatives, by providing and coordinating community engagement opportunities, and by providing broad based communications leadership that articulates the mission of the University to the region, state and nation. The Division includes Alumni Affairs, Community Relations, Giving and Donor Relations, Government Relations, and University Communications.

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# Non-Discrimination

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[legal.uncc.edu/legal-topics/nondiscrimination](http://legal.uncc.edu/legal-topics/nondiscrimination)

## Nondiscrimination and Procedures for Addressing Reports of Discrimination

The University seeks to promote a fair, humane, and respectful environment for its faculty, staff, and students. To that end, the University affirms that its educational and employment decisions must be based on the abilities and qualifications of individuals and may not be based on irrelevant factors, including personal characteristics, that have no connection with academic abilities or job performance. Therefore, the University prohibits discrimination and harassment in its educational and employment decisions and provides equal opportunities for all members of the University community and for all those seeking to join the University community. The following factors may not form the basis for educational or employment-related decisions:

- race;
- color;
- religion, including belief and non-belief;
- sex, including but not limited to
  - pregnancy, childbirth, or related medical condition, and
  - parenting;
- sexual orientation;
- actual or perceived gender identity, including but not limited to
  - gender expression,
  - transition status (including but not limited to physical transition),

- transgender status, and
- gender nonconformity;
- age;
- national origin;
- physical or mental disability;
- political affiliation;
- veteran status; and
- genetic information.

See University Policy 501, Nondiscrimination and Procedures for Addressing Reports of Discrimination at [legal.uncc.edu/policies/up-501](http://legal.uncc.edu/policies/up-501). See also University Policies Chapter 500, Nondiscrimination, at [legal.uncc.edu/policies/chapter-500](http://legal.uncc.edu/policies/chapter-500).

## Equal Opportunity

University Policy 101.5, Equal Employment Opportunity, provides that University of North Carolina at Charlotte recognizes a moral, economic, and legal responsibility to ensure equal employment opportunity for all persons, regardless of

- race;
- color;
- religion, including belief and non-belief;
- sex, including but not limited to
  - pregnancy, childbirth, or related medical condition, and
  - parenting;
- sexual orientation;
- actual or perceived gender identity, including but not limited to
  - gender expression,
  - transition status (including but not limited to physical transition),
  - transgender status, and
  - gender nonconformity;
- age;
- national origin;
- physical or mental disability;
- political affiliation;
- veteran status; and
- genetic information.

This policy is a fundamental necessity for the continued growth and development of this University. Nondiscriminatory consideration shall be afforded applicants and employees in all employment actions including recruiting, hiring, training, promotion, placement, transfer, layoff, leave of absence, and termination. All personnel actions pertaining to either academic or nonacademic positions to include such matters as compensation, benefits, transfers, layoffs, return from layoffs, University-sponsored training, education, tuition assistance, and social and recreational programs shall be administered according to the same principles of equal opportunity. Promotion

and advancement decisions shall be made in accordance with the principles of equal opportunity, and the University shall, as a general policy, attempt to fill existing position vacancies from qualified persons already employed by the University. Outside applicants may be considered concurrently at the discretion of the selecting official. The University has established reporting and monitoring systems to ensure adherence to this policy of nondiscrimination. Visit [legal.uncc.edu/policies/up-101.5](http://legal.uncc.edu/policies/up-101.5) for more information.

## Affirmative Action

The University's philosophy concerning equal employment opportunity is affirmed and promoted in the University's Affirmative Action Plan. To facilitate UNC Charlotte's affirmative action efforts on behalf of disabled workers and protected veterans, individuals who qualify and wish to benefit from the Affirmative Action Plan are invited and encouraged to identify themselves. This information is provided voluntarily, and refusal of employees to identify themselves as veterans or disabled persons will not subject them to discharge or disciplinary action. Unless otherwise required by law, the information obtained will be kept confidential, except that supervisors and managers may be informed about restrictions on the work or duties of disabled persons and about necessary accommodations. Visit [hr.uncc.edu/employee-relations/affirmative-action](http://hr.uncc.edu/employee-relations/affirmative-action) for more information.

## Title IX

**Notice of Nondiscrimination under Title IX:** As a recipient of federal funds, the University of North Carolina at Charlotte complies with Title IX of the Higher Education Amendments of 1972, 20 U.S.C. § 1681 et seq. ("Title IX"), which prohibits discrimination on the basis of sex in education programs or activities. The University of North Carolina at Charlotte is committed to providing programs, activities, and an educational environment free from sex discrimination. Title IX protects all people regardless of their gender or gender identity from sex discrimination. Under Title IX, sex discrimination also includes Sexual Harassment and Sexual Misconduct, as those terms are further defined in the Notice of Nondiscrimination under Title IX. For more information, visit [legal.uncc.edu/sites/legal.uncc.edu/files/media/TitleIXNotice.pdf](http://legal.uncc.edu/sites/legal.uncc.edu/files/media/TitleIXNotice.pdf).

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# Accreditations

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<http://assessment.uncc.edu/accreditations>

UNC Charlotte is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, master's, and

doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of UNC Charlotte. The following questions, comments, and complaints should be directed to the Southern Association of Colleges and Schools Commission on Colleges:

- 1) to learn about the accreditation status of the institution
- 2) to file a third-party comment at the time of the institution's decennial review
- 3) to file a complaint against the institution for alleged non-compliance with a standard or requirement

Other inquiries about the institution such as admission requirements, financial aid, educational programs, etc., should be addressed directly to the institution and not to the Commission's office.

## College of Arts + Architecture

The Bachelor of Architecture and Master of Architecture are accredited professional degree programs as recognized by the National Architectural Accrediting Board (NAAB).

The Bachelor of Arts in Music and Bachelor of Music are accredited degree programs as recognized by the National Association of Schools of Music (NASM).

## College of Business

The programs in business and accounting are accredited by AACSB International - The Association to Advance Collegiate Schools of Business.

## College of Education

The University's professional education programs for BK-12 teachers, counselors, and administrators are approved by the North Carolina Department of Public Instruction (NCDPI) and accredited by the National Council for Accreditation of Teacher Education (NCATE).

Counseling programs in Counselor Education are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

## College of Engineering

The baccalaureate programs in civil, computer, electrical, mechanical, and systems engineering are accredited by the Engineering Accreditation Commission of ABET. The construction management program and the civil, electrical, and mechanical engineering technology baccalaureate programs are accredited by the Engineering Technology

Accreditation Commission of ABET, <http://www.abet.org>.

## College of Health and Human Services

The baccalaureate and master's programs in the School of Nursing are accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791. The BSN program is approved by the North Carolina Board of Nursing. The Nursing Anesthesia program is accredited by the Council on Accreditation of Nurse Anesthesia Education Programs (COA). The Doctor in Nursing Practice program is seeking accreditation by the Commission on Collegiate Nursing Education (CCNE).

The Bachelor of Athletic Training program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The Bachelor of Science in Exercise Science, the Bachelor of Science in Neurodiagnostic and Sleep Science, and the Clinical Exercise Physiology concentration within the Master of Science in Kinesiology programs are accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

The Master of Health Administration program is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME). The Public Health Programs (BSPH and MSPH) in the Department of Public Health Sciences are accredited by the Council on Education for Public Health (CEPH).

Both the Bachelor of Social Work (B.S.W.) and the Master of Social Work (M.S.W.) are accredited by the Council on Social Work Education (CSWE).

## College of Liberal Arts & Sciences

The Department of Chemistry is on the approval list of the American Chemical Society.

The Public Relations program within the Department of Communication Studies is certified by the Public Relations Society of America (PRSA).

The Clinical Psychology program within the Ph.D. in Health Psychology is accredited by the American Psychological Association (APA).

The Master of Public Administration program is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA).

## Graduate School

The University is a member of the Council of Graduate Schools, the Conference of Southern Graduate

Schools, and The North Carolina Conference of Graduate Schools.

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# Graduation Rate Disclosure Statement

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Our data shows that 60.5% of the full-time new freshmen who entered UNC Charlotte in Fall 2008 have received a baccalaureate from this institution or another UNC institution as of Fall 2014. In addition, another 5.3% were enrolled at this or another UNC institution in pursuit of their baccalaureate degree as of Fall 2014. This information is provided pursuant to requirements of the Student Right-to-Know and Campus Security Act of 1990.

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## The Campus

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### Main Campus

The University of North Carolina at Charlotte is the largest institution of higher education in the Charlotte region and is a genuine urban university. The main campus is in University City, one of the fastest growing areas of the Charlotte region, located off WT Harris



Boulevard on NC 49 near its intersection with US 29, and only eight miles from the interchange of Interstates 85 and 77. Campus facilities are comprised of contemporary buildings, including many constructed in the past ten years and more on the way. In addition to classrooms and well-equipped laboratories, the University offers arts and athletic facilities, dining facilities,

and residence accommodations. The campus is designed for the pedestrian, and facilities are generally accessible to students with disabilities.

### Center City

The University also has a substantial presence in Charlotte Center City, as it offers select upper-division undergraduate and graduate courses and a variety of continuing personal and professional development

programs at its UNC Charlotte Uptown location. Classes are scheduled for the convenience of persons employed in or living near the central business core of the city.

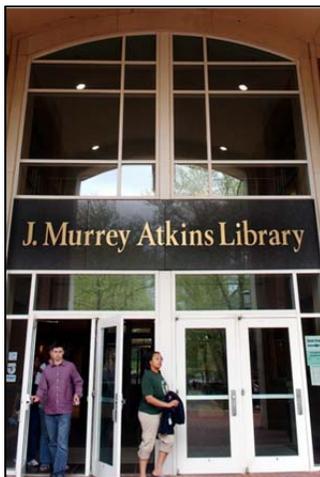


Students in UNC Charlotte's MBA program, other graduate programs, and continuing education programs attend classes in the Center City Building in Uptown Charlotte at the corner of Brevard and Ninth streets. The facility has 143,000 total square feet for offices and academic programs in graduate, professional, and continuing education.

## Campus Academic Buildings

### Atkins Library

Atkins Library, the third building to be constructed on the UNC Charlotte campus, is named for J. Murrey Atkins, the son of a prominent Gastonia family, successful Charlotte businessman and one of the University's founding members.



Atkins, born in Russellville, Ky., graduated from Gastonia High School. At Duke University, he served as editor of the yearbook and earned a bachelor's degree in 1927. He attended

Harvard Law School and Columbia University and spent five years in New York with the Irving Trust Co. before returning to Charlotte. In 1935, he joined the city's leading investment firm R.S. Dickson and Co., where he was president from 1954 until his death.

Atkins was involved with Charlotte College from its inception. He was chair of the college advisory

committee for eight years and chair of the Charlotte Community College System when it was authorized in 1958. When UNC Charlotte became a four-year college, he served as chair of the board of trustees.

Sensitive to the social and educational needs of the community, Atkins believed that the Charlotte region needed a public institution of higher learning to stay competitive with other cities in the state. He used his business, financial and political contacts to help Charlotte College become that institution. "Charlotte College was started to meet an emergency and has continued as a necessity," Atkins was fond of saying.

Charlotte College shared a library facility with Central High School. Mozelle Scherger was hired as the first full-time librarian in 1957, when a daytime instructional program was launched. When the college was formally accredited that fall, the number of volumes in the library exceeded 6,000.

Atkins believed the library should be central on the campus, central in student service and the very focal point of learning. When the library was first moved to the new campus, it was temporarily housed in the W. A. Kennedy Building.

The pioneering leader would not live to see the current library adorned with his name. He died Dec. 2, 1963, and the J. Murrey Atkins Library was dedicated on April 19, 1965. The state legislature appropriated \$20.5 million for an expansion in 1995. It was re-dedicated in 2001.

### Dalton Library Tower

The Harry L. Dalton Library Tower was completed and dedicated in 1971, and re-dedicated in 2001. It is named in honor of Harry Lee Dalton, distinguished Charlotte business leader and patron of the arts, whose gifts stimulated the development of the Library's Special Collections.



### Barnard

The Barnard Building was completed in 1969. It is named in honor of Bascom Weaver Barnard, a founder and first chairman of The Charlotte College Foundation, and first executive director of The Foundation of the University of North Carolina at Charlotte.

Bascom “Barney” Weaver Barnard established the Charlotte College Foundation and served as its first chair. His name features prominently in the early years of UNC Charlotte, and it adorns an 18,000 square-foot building completed in 1969, designed to serve as a facility for instruction and research.



Born Feb. 14, 1894, Barnard was a native of Asheville. He graduated from Trinity College (now Duke University) and completed a master’s degree from Princeton University in 1917. He returned to his alma mater, where he taught economics and served as alumni secretary and graduate manager of athletics until 1922. He eventually left academia for the private sector.

Starting in 1939, Barnard worked as an executive for American Commercial Bank (later NCB, now Bank of America), American Discount Company and the American Credit Corporation while maintaining a busy roster of civic activities. He served on the board the Family and Children Service, the Salvation Army and as chair of the National Affairs Committee of the Charlotte Chamber of Commerce. In 1966, he received one of Charlotte’s highest civic honors - the Civitan Distinguished Citizenship Award.



In that same year, Barnard founded Charlotte College Foundation, which by 1971 had raised \$4.5 million for the fledgling University; since then, the foundation has since raised significantly more to support scholarship and academic programming at UNC Charlotte. He served as the foundation’s secretary and executive director and established the University’s Patrons of

Excellence Program, which solicited gifts of \$10,000 or more from individuals, foundations and corporations.

On May 30, 1971, the UNC Charlotte Academic Council presented Barnard with a resolution stating “Scholarships, professorships, research grants, additions to the library collection, faculty recruitment – all these and more have flourished at his hand. In short, he has helped to provide the margin that leads to excellence.” Barnard died Sept. 27, 1980.

Today, Barnard is home to the Department of Anthropology, College of Liberal Arts & Sciences Instructional and Information Technology, the Office of Adult Students and Evening Services, and Student Computing Labs.

## Burson

Sherman Burson Jr. was the first Charles Stone Professor of Chemistry and the inaugural dean of the-then College of Arts and Sciences.



A native of Pittsburgh, Pa., Burson was born Christmas Eve 1923. His father, a Methodist minister, moved the family to Massachusetts, where Burson graduated from Harwich High School. Uncertain of his career goals, Burson considered becoming a surgeon, psychologist or medical researcher.

With little money for college, Burson took the advice of his high school principal and moved South where college costs were lower. He spent the 1941-42 academic year at the University of Alabama. When money ran out, he returned to Pennsylvania, where he worked in a steel mill during the day and attended the University of Pittsburgh at night. World War II was under way, and Burson entered the U.S. Army. A special program enabled him to continue studies at Louisiana State University; following the war, he returned to the University of Pittsburgh, where he completed a bachelor’s degree in chemistry. He earned a doctorate in 1953.

In 1957, after nearly five years in private industry, Burson decided to pursue a career in academia. He joined the faculty of Pfeiffer College in Misenheimer. At the urging of Bonnie Cone, Burson accepted a position at Charlotte College in 1963. He was a professor of chemistry and chair of the department when Charlotte College became the fourth campus of the University of

North Carolina in 1965. It was under Burson that the department achieved accreditation from the American Chemical Society.

UNC Charlotte's first chancellor, Dean Colvard, appointed Burson acting dean of the College of Science and Mathematics in 1973, and in 1980, Chancellor E.K. Fretwell named him dean of the newly formed College of Arts and Sciences (now the College of Liberal Arts & Sciences), formed by the merger of the College of Science and Mathematics with the College of Humanities and the College of Social and Behavioral Sciences. He held this post until retiring in June 1985.

Completed in summer 1985, the Sherman L. Burson Building was originally dedicated as the Physical Sciences Building. The 104,000-square-foot facility includes a 184-seat tiered lecture hall, a number of smaller lecture halls and laboratory space. Designed by Peterson Associates of Charlotte, the building was constructed by Butler and Sidbury Inc. for a little more than \$8 million. At the time of its re-dedication in April 1999, the building was noted for its planetarium platform mounted on vibration-resistant pedestals, an underground Van de Graaf linear accelerator and reinforced concrete radiation labs.



The building's design won a national architectural award and was included in the American School and Universities Architectural Portfolio for 1986.

Today, Burson is home to the Department of Chemistry and the Department of Physics and Optical Science.

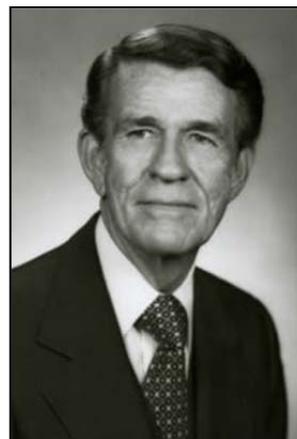
## Cameron

The C.C. Cameron Applied Research Center recognizes an individual whose civic and business leadership contributed to the development of UNC Charlotte and the entire UNC system.

Clifford Charles Cameron was born in Meridian, Miss. He later attended Louisiana State University, where he completed a bachelor's degree in chemical engineering in 1941. Following service in World War II, he worked as an engineer for Standard Oil Co. At the urging of a

war buddy, Cameron changed careers and became a mortgage banker in 1949. He entered this relatively new field with the creation of Cameron Mortgage Co. in Raleigh. The company merged with Brown-Hamel Mortgage Co. of Greensboro in 1955 and acquired the Carolina Realty Co. of Charlotte. This was the beginning of the Cameron-Brown Co. that would later combine with First Union.

Following that merger, Cameron moved to Charlotte,



where he became chief executive officer of First Union in 1968. His affiliation with UNC Charlotte dates to 1967, when Cameron became a member of the board of directors of the UNC Charlotte Foundation. In the early 1980s, Cameron co-chaired UNC Charlotte's first capital campaign and played a leadership role in the University's Silver

Anniversary Campaign. He also served as on the UNC Charlotte Board of Trustees and the UNC Board of Governors.

Through his involvement with the UNC Charlotte Foundation, Cameron is credited with helping to create University Place and the subsequent economic development that resulted. He also played a part in the development of the Ben Craig Center.

Chancellor emeritus E.K. Fretwell noted in a magazine article that "Cliff Cameron personifies corporate responsibility... He is giving of his management expertise, his leadership, his great prestige and his personal attention to assist the University of North Carolina at Charlotte in its quest for excellence."

Before retiring as First Union chair in 1984, Cameron laid the groundwork for its growth as one of the nation's top 20 banks. Committed to public service, Cameron served as an advisor to North Carolina governors for four decades. He was a member of Gov. Luther Hodge's Business Development Corp., Gov. Dan Moore's Council for Economic Development; Gov. Bob Scott's Conservation and Development Board and Gov. Hunt's Advisory Budget Commission and Transportation Study Commission. Under Gov. James Martin, Cameron served as an assistant for budget and management.

One of the University's most prestigious scholarships bears the name of C.C. Cameron in recognition of First Union's and his personal contributions that made the

financial assistance possible. In honor of his service to the University and the state, UNC Charlotte awarded Cameron an honorary Doctor of Public Service in 1983.

Completed in 1990 and dedicated on Sept. 25, 1991, the Cameron Applied Research Center contained roughly 74,000 square feet of laboratory, office and conference space to support world-class research. At the time, the center was the focal point for the University's outreach mission to the region. It provided businesses, agencies and organizations access to academic and applied research expertise. A multipurpose facility, the center was designed for maximum flexibility to accommodate evolving research projects. It features clean-room and vibration-free spaces, a 96-seat auditorium and a media center equipped for teleconference and distance learning.



In 2000, the center was renovated and expanded to add roughly 42,000 square feet of space.

Today, the building is known as Cameron Hall and is home to the University Writing Programs and the Department of Systems Engineering and Engineering Management.

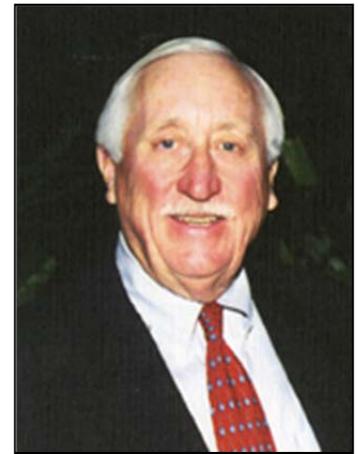
## Cato

Dedicated May 6, 2004, Cato Hall is often the first point of contact for prospective students interested in enrolling at the state's urban research institution. Named for Wayland H. Cato Jr., the building houses Undergraduate Admissions, the Graduate School and the Chancellor's Office, as well as internal audit and legal affairs.

A distinguished business leader and philanthropist, Cato was born in Ridge Spring, S.C., in 1923. His father, Wayland Cato Sr. worked for United Merchants and Manufacturers (UM&M), a New York-based textile conglomerate. The elder Cato moved his family to Augusta, Ga., in 1937, where the younger Cato attended the Academy of Richmond County, a compulsory ROTC military public school. He graduated

with honors in 1940.

Cato Jr. enrolled at UNC-Chapel Hill and was elected to Beta Gamma Sigma, a national honorary scholastic commerce fraternity. He also joined the Naval Reserve Officers Training Corps. In 1944, Cato graduated in the top three percent of his class with a bachelor's degree in commerce.



During World War II, he served nearly three years on active duty in the U.S. Navy, stationed aboard minesweepers in the Pacific Theatre.

Following his discharge, Cato joined his father and other family members in Charlotte. The elder Cato had left UM&M to start his own business, which became the Cato Corporation, a chain of women's apparel stores. Cato Jr. became president and chief executive officer of the family business in 1960. He added the title chair of the board of directors in 1970. He retired as chair emeritus in 2004; his son John Cato was named CEO in 1999.



From 1995 to 2002, Cato Jr. was a director of the UNC Charlotte Foundation. Personally and corporately, he endowed a number of scholarship programs at the University. For his leadership in business in the Carolinas and service to the nation, state and community and for his commitment to learning and scholarship, Cato was awarded an honorary Doctor of Humane Letters during commencement in May 2002.

Conceived as the Humanities Office Wing, Cato Hall originally housed Undergraduate Admissions and the Graduate School, along with the Development Office and the departments of Communication Studies and

Social Work. The three-story, 32,500-square-foot facility was built for \$5.1 million using bonds approved by state voters in 2000 and other University funds.

Today, Cato is home to Undergraduate Admissions, the Graduate School, Academic Services, the Chancellor's Office, the Office of Legal Affairs, and Internal Audit.

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## Colvard

The Colvard Building opened in 1979, and its steel-frame and curtain-wall construction and many energy saving features were considered progressive for its time. Harry Wolf of Wolf Associates designed the structure, and he won the 1980 South Atlantic Regional AIA Honor Award for his work. Among the energy-saving features Wolf utilized were vermiculite insulate roofing, insulated walls and a heat reclaimer. Also, the center arcade was designed for the horizontal and vertical movement of students in a space that did not need to be heated or cooled.

While many of Wolf's design techniques are common today, 30 years ago they were considered forward-thinking. It is appropriate such a building honors Dean Wallace Colvard, UNC Charlotte's first permanent chancellor, a man considered ahead of his time in many respects.



Born in 1913, Colvard was raised in the mountains of western North Carolina in Ashe County. President and salutatorian of his high school class, Colvard was the first member of his family to attend an institution of higher learning. He started at Berea College in 1931, where he earned a scholarship. He also met Martha Lampkin; they would wed in the college's Danforth Chapel in 1939.

After completing his undergraduate degree, Colvard earned a master's degree in endocrinology from the University of Missouri and a doctorate in agricultural economics from Purdue University. He also served as superintendent of North Carolina Agricultural Research Stations from 1938-46. In 1948, Colvard was hired to run North Carolina State University's animal science program. Five years later, he became the dean of agriculture, a post he held until 1960, when he became president of Mississippi State University (MSU), where he unintentionally became part of college sports history. MSU had won three straight

Southeastern Conference championships, but the institution declined to participate in the NCAA tournament rather than integrate, even briefly, on the basketball court. In 1963, Colvard defied a court injunction and allowed the MSU basketball team to compete in the tournament against a team with African-American players.

Colvard returned to his native state in 1966 after being named chancellor of UNC Charlotte. He embraced the challenge of turning a pioneering junior college into a university that had become the fourth member of the consolidated UNC system. As chancellor, he secured regional and national accreditation for University programs, helped create the University Research Park, added graduate programs, expanded the campus and oversaw the growth of the student body from 1,700 to 8,705 students.

He retired Dec. 31, 1978, but Colvard did not leave education behind. He helped build two other institutions: the School of Science and Mathematics at Durham and the hands-on museum Discovery Place. He died June 28, 2007.



Today, Colvard is home to the Departments of Communication Studies, Psychology, and Criminal Justice and Criminology; the University Advising Center; University College; Distance Education; Institutional Research; Summer School; and the Urban Institute.

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## Cone University Center

Since first opening its doors in 1962, the Cone University Center has been a gathering place for students, faculty, staff, administrators, alumni and guests. As such, it is fitting that the facility bears the name of Bonnie Ethel Cone, the beloved mathematics teacher and visionary administrator who, perhaps more than anyone else, is credited as UNC Charlotte's founder.

Born June 22, 1907, in Lodge, S.C, “Miss Bonnie,” as she was affectionately called, taught high school in South Carolina for 12 years before moving to Charlotte’s Central High School in 1940. During World War II, she taught math to men enrolled in the navy’s V12 program at Duke University, and she spent a year working as a statistical analyst for the Naval Ordnance Laboratory in Washington, D.C.



Cone’s background made her the perfect person to head one of the new extension centers established in the late 1940s to serve returning war veterans. Cone directed the Charlotte Center and signed on as a part-time instructor in engineering and math.

Always a firm believer that Charlotte needed a public university, Cone was determined to see one built in the Queen City. She helped turn the temporary veteran’s center into a permanent two-year college. In 1963, she played a key role in convincing the North Carolina General Assembly to make Charlotte College a part of the University of North Carolina system. On July 1, 1965, Bonnie Cone stood beside Gov. Dan Moore to ring the bell announcing the official creation of the University of North Carolina at Charlotte.



“Miss Cone has provided the faith on which the college many times found its primary ability to exist,” said J. Murrey Atkins in a tribute. “She has stuck with it and never even thought of giving up when sometimes the sledding seemed pretty hard.”

Cone served as acting chancellor for nine months and remained committed and loyal to UNC Charlotte. She

served as vice chancellor for student affairs and community relations until she retired in 1973. On June 29, as part of her retirement service, the UNC Charlotte Board of Trustees named the University Center in her honor. In retirement, Cone continued to raise money and support the University until her death in 2003.

## Denny

In 1965, a new campus facility designed by Odell Associates was completed at a cost of \$569,000. Five years later, the building was dedicated in honor of Mary Rebecca Denny, chair of the UNC Charlotte English Department for 14 years.

Denny was born on Aug. 12, 1896, on the family farm near the small town of Red Springs, N.C. She attended Salem College and taught English in several public schools in eastern North Carolina after completing her bachelor’s degree in 1917. She went on to earn a master’s degree from Duke University and become associate professor of English at Queens College. She left Queens in 1946 to become the first full-time faculty member at the Charlotte Center of the University of North Carolina (now UNC Charlotte).

Although the Charlotte Center was created to serve in an emergency situation, Denny believed that it would



eventually provide more than a temporary opportunity for its students. She was right as the Charlotte Center became Charlotte College, one of the first two-year community colleges in North Carolina, in 1949.

During the next 15 years, Denny completed an impressive list of initiatives, including the creation of the college newspaper, the literary magazine and the college catalog. When Charlotte College became a four-year institution, Denny relinquished her role as department head, but she remained active with the Curriculum Committee. She retired in 1964, with the distinction of being the institution’s first professor emeritus.

At the Oct. 9, 1970, dedication ceremony naming what was then the largest classroom building in her honor, UNC Charlotte trustees enthusiastically paid tribute - “We transform glass, steel and stone into a monument to your spirit – forthright, steadfast, energetic and humanitarian. May this building forever serve as a reminder of your commitment to the ideals of sound scholarship, integrity and excellence.”



Following her retirement, Denny returned to her family home in Red Springs, where she resided until her death in 1979.

## Duke Centennial

Duke Centennial Hall was dedicated on September 8, 2006, in honor of Duke Energy's century of service and its commitment to leadership for the future.

Duke Energy's history in the Carolinas dates back to 1904, when its first power station was built on the Catawba River. Cheap hydroelectric power helped transform the regional economy from agriculture to manufacturing.

In the 21<sup>st</sup> Century, our economy continues to change. Duke Energy partnered with UNC Charlotte to help establish the Charlotte Research Institute to advance technology, foster innovation, and drive economic growth in our region.



## Fretwell

The E.K. and Dorrie Fretwell Building honors the campus contributions of UNC Charlotte's second chancellor and his wife.

At the time of its dedication on May 23, 1996, the 162,000-square-foot facility was the largest academic structure on campus. It contains approximately 250 faculty offices and classroom seating for about 2,100 students. Built for \$18 million, the four-story facility was constructed with revenues from a bond issue

approved by North Carolina voters in a November 1993 referendum.

The son of two teachers, E.K. Fretwell was born in New York City. He earned a bachelor's degree at Wesleyan University, a master's in teaching from Harvard University and a doctorate from Columbia University. An Associated Press correspondent, writer for the American Red Cross, vice consul for the American Embassy in Prague and middle and high school teacher, Fretwell entered education administration in 1956 as assistant commissioner for higher education for the New York State Board of Regents. He also served as dean for academic development at the City University of New York and president of the State University of New York College at Buffalo. In addition, he was president of the American Association for Higher Education and chair of the Carnegie Foundation for the Advancement of Teaching.

A national leader in education, Fretwell became UNC Charlotte's second chancellor in January 1979. At the time, the University's enrollment was around 8,700 students. By his retirement in June 1989, UNC Charlotte's enrollment topped 13,000.



Chancellor Emeritus Fretwell (second left) with his wife Dorrie at the formal dedication ceremony for the Fretwell Building

During his tenure, Fretwell merged the colleges of Humanities, Social and Behavioral Sciences and Science and Mathematics into the College of Arts and Sciences (now the College of Liberal Arts & Sciences) and created the Graduate School. Besides enhancing UNC Charlotte's national reputation for educational excellence, Fretwell increased the institution's links to the community through the expansion of the Urban Institute and University Research Park, the development of University Place and establishment of the C.C. Cameron Applied Research Center.



Throughout his career, Fretwell relied upon his wife Dorrie; he was quoted often as saying they were a team. Born in Chicago, Dorrie Shearer Fretwell grew up in Evanston, Ill. She earned bachelor's and master's degrees in applied music at Drake University. Before her marriage, Fretwell studied voice at the American School of Music in Fontainebleau, France, and began her career as a professional soprano, performing as a soloist with choral societies, musical clubs and opera productions on stage and television. During her husband's tenure in Buffalo, Fretwell served as vice chair of the board of the Buffalo Philharmonic Orchestra and vice president of the Girl Scouts. In Charlotte, she was on the board of Opera Carolina and the Charlotte Symphony. Among the initial enrollees of UNC Charlotte's graduate program in clinical psychology, she was its first graduate. She went into practice with Carolina Psychological Services and published a number of articles related to depression and headache management before retiring in 1996. She passed away December 30, 2011.

At the University's formal ceremony to dedicate the E.K. and Dorrie Fretwell Building, Allan Ostar, president emeritus of the American Association of State Colleges and Universities, noted "as a magnificent center of learning, it is a fitting tribute to a towering educational leader."

## Friday

The Ida and William Friday Building houses the Belk College of Business, and it honors the many contributions of William C. Friday to the University of North Carolina system.

Born in Raphine, Va., Friday grew up in the Gaston County town of Dallas, where he played baseball and basketball. He attended N.C. State University, graduating with a bachelor's degree in textile manufacturing. As a senior, Friday met Ida Howell from Lumberton who was pursuing a bachelor's degree in home economics at Meredith College. They married on

May 13, 1942, and Bill Friday continued his education at UNC-Chapel Hill where he earned a law degree. Ida Friday also furthered her studies, obtaining a master's in public health from UNC-Chapel Hill.

Friday spent the majority of his career in higher education. He was assistant dean of students at UNC-Chapel Hill, assistant to the president of the Consolidated University of North Carolina and secretary of the University of North Carolina. At age 36, Friday was named acting president of the UNC system. He would lead the system until 1986. During his tenure, he became recognized as one of America's most respected and effective educational leaders. Through the 1963 Higher Education Act, Friday redefined the purpose of each institution of the UNC system (at the time, UNC-Chapel Hill, N.C. State University and UNC Greensboro; UNC Charlotte became the fourth member of the system in 1965). In 1972, he reorganized the entire system which had grown to include 16 campuses (now 17 after the addition of the N.C. School of Science and Mathematics).



On more than one occasion, Friday noted his achievements could not have been possible without his wife, Ida. He said, "It took two of us to do this." As "first lady" of the UNC System, Ida Friday was active in community service, including president of the Chapel Hill Preservation Society, member of the board of the North Carolina Symphony Society, chair of the YMCA and YWCA at UNC-Chapel Hill and a member of the League of Women Voters.

Dedicated in 1982, the Friday Building incorporated the best classroom designs for teaching future business leaders for its time. UNC Charlotte faculty and staff, along with the architect, visited a number of institutions recognized for having leading business programs, including Harvard University, the University of Virginia and the University of Tennessee. The Friday Building's classrooms are modeled after the case classrooms pioneered at the Harvard Graduate School of Business.

The 64,000-square-foot building was designed to accommodate a third floor, which was constructed in 1994-95 using \$3 million from a state bond referendum approved by voters in 1993. Changes in the building code required the University to make the

facility more earthquake resistant. The columns that grace Friday Building contribute to its distinctive look; they were added during the expansion at the suggestion of Chancellor Emeritus Jim Woodward.



Several other UNC institutions have honored the Fridays with buildings on their campuses, including N.C. State University (the William and Ida Friday Institute for Educational

Innovation), UNC-Chapel Hill (the William and Ida Friday Center for Continuing Education) and UNC Wilmington (Friday Hall).

## Garinger

Elmer Henry Garinger was one of the visionary leaders who helped Charlotte College realize the dream of becoming a four-year, state-supported institution.

As superintendent of Charlotte City Schools, Garinger employed Bonnie Cone, UNC Charlotte founder, as a mathematics teacher at Central High School. Later, he would name her director of the Charlotte Center of the University of North Carolina, the institution that ultimately became UNC Charlotte.

Born July 13, 1891, in Mount Vernon, Mo., Garinger graduated from the local high school and continued his education at the University of Missouri. He completed a bachelor's degree in 1916, and eventually, he earned a master's degree and doctorate from Columbia University.

During his 40-year career with Charlotte City Schools that began in 1921, Garinger gained a national reputation as a leader in education. In 1949, he was named superintendent of Charlotte City Schools, and he took the lead in planning for the consolidation of the Charlotte and Mecklenburg County school systems, a goal achieved in 1959. Garinger served for a year as superintendent of the new system, retiring as superintendent emeritus.

Garinger's association with UNC Charlotte continued throughout his life. He was instrumental in requesting the Charlotte Center be founded, and he was among the Charlotte leaders who worked to change the

Charlotte Center to Charlotte College in 1949. When the institution was placed under the community college system in 1958, Garinger was named secretary of the first Board of Trustees of the Charlotte Community College System; he served in this capacity until 1963, when Charlotte College became a four-year, state-supported institution.

After retiring from the Charlotte-Mecklenburg Schools, Garinger worked to improve public education as a member of the N.C. House of Representatives, where he served two terms. In honor of Garinger's service to public education and the University, UNC Charlotte's Board of Trustees voted to name the first faculty building, constructed in 1965, in his honor. The Elmer Henry Garinger Building was dedicated in October 1970; a portrait of Garinger that hangs in the building was dedicated in March 1987.

He died in Charlotte on Aug. 21, 1982.



## Grigg

Dedicated on Sept. 8, 2006, William H. Grigg Hall is home to a number of Charlotte Research Institute offices and facilities, including the Center for Optoelectronics and Optical Communications.

Named for the chair emeritus of Duke Energy, Grigg Hall is a 96,820-square-foot, state-of-the-art academic and research facility. In 2002, the Duke Energy Foundation announced a \$10 million gift to the University's capital campaign in support of Charlotte Research Institute programs and initiatives. Construction of Grigg Hall began in 2003 with funding from the state's \$3.1 billion bond referendum approved by North Carolina voters in 2000.

Grigg, who grew up in Albemarle, completed a bachelor's degree from Duke University in 1954. After serving two years in the U.S. Marine Corps, he earned a law degree with distinction from Duke in 1958. After practicing law in Charlotte for five years, Grigg joined

Duke Power in 1963 as assistant general counsel. He was promoted to vice president of finance in 1970 and vice president and general counsel in 1971. Elected to Duke Power's board of directors in 1972, Grigg eventually was named vice chair in 1991 and chair and chief executive officer in 1994. He retired in 1997.



During Grigg's tenure with Duke Power, he guided the corporation through some of the most challenging times in the electric utility industry. He helped expand and diversify the company's power plants and led the company's response to competition, including the merger with PanEnergy in 1997 to create Duke Energy. Grigg was named Electric Utility CEO of the Year for 1995 by Financial World magazine.

Committed to civic leadership and quality education, Grigg has served countless community groups, including the Charlotte-Mecklenburg Hospital Authority, Foundation for the Carolinas and the Lynwood Foundation. In honor of his contributions to Charlotte and the greater community, UNC Charlotte awarded Grigg an honorary doctorate of public service in December 1997.

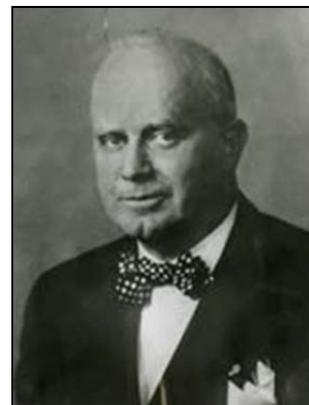
The architectural firm of Perkins-Will, which has offices nationwide, designed Grigg Hall. Constructed for roughly \$24 million, Grigg Hall features a 3,000-square-foot clean room, a controlled environmental space used for research and manufacturing. Clean, contamination-free rooms are used in variety of research settings – electronics and optics, as well as pharmaceuticals and DVD manufacturing.

## Kennedy

The W.A. Kennedy Building was one of the first two facilities on campus. Designed by A. G. Odell Jr., the architect of Ovens Auditorium and Bojangles Coliseum, the building was named for Woodford A. "Woody" Kennedy. Sometimes called the "spiritual father of Charlotte College," Kennedy was a member of the first advisory board of the institution in 1947. He was

named to its eight-member board two years later. Without Kennedy's perseverance, Charlotte College likely would have remained a two-year community college.

Kennedy believed that Charlotte deserved and needed a great university. He stated that a thousand additional high school graduates could go to college each year if the opportunities available in other parts of the state were available in Charlotte. With a zeal he once termed an obsession, Kennedy worked tirelessly to raise money and support to make that happen.



He encountered a lack of support among many of Charlotte's business executives and disinterest from politicians. His rhetoric sometimes became strident, characterizing critics of the project as naysayers and deriding the state's support as a 'sop.'

At the time, the school operated with a part-time faculty who taught in part-time classrooms, and it was financed almost entirely by tuition paid by student loans until Kennedy pushed for and obtained the initial state funding in 1955.

As a member of the college's site selection committee, he searched for a scenic location with room for growth and expansion; the committee ultimately settled on the present location of the UNC Charlotte campus. He told reporters, "I may not but you will live to see 10,000 students at Charlotte College."



The statement proved prophetic. Kennedy died on May 11, 1958, the eve of his installation as a trustee of Charlotte Community College. But his contribution was not forgotten. The trustees proposed that the first building on the new campus be named for him. The

building was dedicated on Feb. 16, 1962.

When Kennedy Building first opened, it housed science laboratories (chemistry, physics, biology and geology), as well as labs for a variety of engineering courses. There were 10 classrooms, 12 faculty offices and a lecture room with elevated seating for 100. The building also served as a temporary library; its first floor contained 18,000 volumes while Atkins Library was being built.

Today, the Kennedy Building primarily houses administrative offices for Information and Technology Services.

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## King

Arnold K. King may be one of the few individuals to have a building named in his honor on two UNC system campuses. Ten years before UNC Charlotte dedicated the King Building for him, UNC Wilmington put King's name on an administrative and classroom building. Such an honor is an indication of the vital role King played throughout the UNC system.



From his days as a student at UNC-Chapel Hill in the 1920s until his retirement as special assistant to UNC President William Friday,

King was an integral part in the development of the University of North Carolina system. After receiving his bachelor's degree, he continued his education at the University of Chicago, completing a master's and doctorate. Returning to Chapel Hill, King served as a professor, graduate school administrator, head of summer sessions and vice president. He also was acting chancellor for UNC Asheville in 1977.

King participated in a number of education-related study commissions, panels and boards across North Carolina and around the country. UNC President Friday and King were colleagues for more than 20 years. The UNC leader turned to King for his assessment when planning for the system's future. King served as a liaison between Friday and Charlotte College during the institution's transition to becoming the University of North Carolina at Charlotte. He later played the same role for UNC Asheville and UNC Wilmington.

In addition to his long service to the UNC system, King was one of the founders of N.C. Wesleyan College, and

he was considered an expert on the history of the UNC system. In retirement, he wrote "The Multi-campus University of North Carolina Comes of Age: 1956-1986," a historical bibliography of his three decades working in the system. He finished a 20-page manuscript on UNC's University Day celebration just two days before his death.

The architectural firm of Odell Associates Inc. designed the building, which was constructed by F.N. Thompson Inc. in 1966 at a cost of \$603,000. The King Building was originally named for Addison Hardcastle Reese. It was renamed for King following the dedication of Reese Building, which opened in 1982. Dr. King passed away on March 31, 1992, at the age of 90. A resolution in his memory noted, "Our University lost a part of its memory and conscience, and it lost a great friend."



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## Macy

The Macy Building was one of the first two facilities constructed on the UNC Charlotte campus. It was named for Pierre Macy, professor of French and chair of the then Foreign Language Department. The 18,000-square-foot research and instructional facility was constructed concurrently with the Kennedy Building by Odell Associates in 1961 at a cost of \$418,000.



Macy was born in France in 1899 and received degrees from the University of Nancy, the University of

Dijon and the University of Paris before making the United States his adopted home.

The noted author and translator arrived at Charlotte College in 1949 and almost single-handedly

established and maintained the fledgling college's Foreign Language Department (now the Department of Languages and Culture Studies). Before joining the faculty of Charlotte College, Macy was chair of the Romance Language departments at Kentucky Wesleyan College, the University of Tulsa and the College of William and Mary. He returned to his alma mater, the University of Nancy, for one year as a visiting professor.

An integral faculty member of the college, Macy served on the curriculum committee, chaired the concerts and lectures committee, advised the French Club and later served on the University's executive committee.

Students held Macy in such high regard that the 10th edition of the yearbook was dedicated to him in 1960 "for his deep understanding, patient guidance and personal interest in the students of Charlotte College. He has inspired us to greater achievements through his teaching and counseling, and he will be fondly remembered in our memories of Charlotte College."



Macy served as the first commencement marshal for the newly established University. His dedication to UNC Charlotte went well beyond any specific position he held. He taught French three years after relinquishing the department chairmanship and stayed on the faculty two years after he reached retirement age.

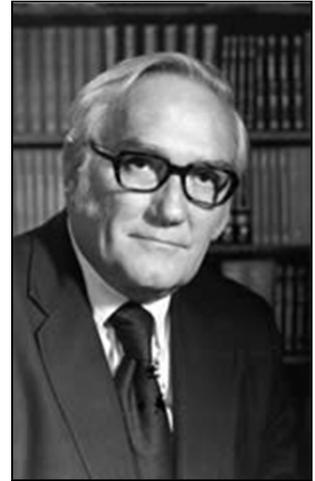
At his 1969 retirement, he received the rare honor of being named a faculty emeritus from his colleagues. "The Foreign Language Department, carefully constructed by Dr. Macy over the years was clearly one of the solid blocks of the foundation of the new institution," read the tribute. He is further remembered today with the Pierre Macy Award for Excellence in French.

## McEniry

Built to house the University's earth and life sciences programs, the McEniry Building is named for UNC Charlotte's first vice chancellor for academic affairs,

William Hugh McEniry. The \$4 million, 103,000-square-foot facility was completed July 7, 1975, to house the Departments of Geography and Earth Science and Biology.

Chancellor Dean Colvard hired McEniry (pronounced My-Canary) in 1967; Colvard was searching for a top-notch administrator with an arts and sciences background. Based upon numerous recommendations, Colvard recruited McEniry away from Stetson University where he had spent 27 years and served as a university dean. Ready for a new challenge, McEniry and his wife, Mary, relocated to North Carolina and settled into a 17-acre plot of land between the University and Huntersville they dubbed "Rural Simplicity."



McEniry is credited with recruiting dedicated and talented faculty to UNC Charlotte, and he was active in a number of organizations, such as the North Carolina Association of Colleges and Universities and the College Entrance Board. He also served as president of the Southern Association of Colleges and Schools.

Dedicated to improving higher education for blacks, McEniry served as a trustee of Johnson C. Smith University. In addition, he personally financed scholarships for some black students and worked with the Ford Foundation to improve academics and the curricula for historically black colleges.



In 1973, McEniry agreed to serve as acting chancellor at Western Carolina University in Cullowhee until a permanent chancellor was hired. He passed away on

March 15, 1974, at the age of 57.

The McEniry Building is just one lasting tribute to the University's pioneering vice chancellor. Each year, a member of the graduating class with the highest GPA receives the W. Hugh McEniry Award for Academic Excellence. The North Carolina Association of Colleges and Universities named its top honor for the trailblazing educator - the Hugh McEniry Award for Outstanding Service to North Carolina Higher Education. Following McEniry's death, Stetson University established the McEniry Award, a prestigious honor given a professor as selected by faculty members and students.

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## Memorial Hall

Memorial Hall is a dedicated to fallen U.S. veterans. The building houses the Departments of Military Science and Aerospace Studies. It serves as a memorial to commemorate UNC Charlotte students who have served in any branch of the Armed Services and lost their lives in service to the country.



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## Reese

Around Charlotte, Addison Hardcastle Reese is probably better known as a titan of the banking industry rather than for his passionate commitment to UNC Charlotte.

Born in Baltimore County, Md., on Dec. 28, 1908, Reese attended Johns Hopkins University but left after his junior year to begin his lifelong career in banking. He worked as a clerk, a senior national bank examiner and a bank vice president all before serving in the U.S. Air Force during World War II.



Reese returned to banking after the war and was recruited to Charlotte in 1951 as executive vice president of American Trust Company. He was promoted to president in 1954 and organized a series of mergers that became the North Carolina National Bank, which has since evolved into the Bank of America. He also served on the board of the Federal Reserve and as a director of the International Monetary Conference.

Named to the Board of Advisors of the Charlotte Community College System in 1957, Reese was later elected to the college's Board of Trustees. He chaired the Charlotte College Site Committee and worked with University founder Bonnie Cone and Pete McKnight to choose UNC Charlotte's current location.

In 1963, Reese was appointed vice chair of the Charlotte College Board of Trustees and took over as chair following the death of J. Murrey Atkins. He spent a year as a member of the North Carolina Legislative Study Commission on Student Financial Aid and was a member of the UNC Charlotte Foundation.

In 1968, UNC Charlotte awarded its first honorary degrees. One went to Reese and the other went to Frank Porter Graham, former University of North Carolina president, U.S. senator and United Nations mediator.



Reese's award recognized him as "a man of vision, who foresaw a university of excellence, where those of lesser vision saw only a struggling community college."

The North Carolina Citizens Committee presented Reese with the 1974 Distinguished Citizenship Award. Reese also served on the boards of trustees for both the University of North Carolina and UNC Charlotte, serving as the chair of the latter from 1972 until his death in 1977.

Like the Colvard Building, the Reese Administration

Building was designed by Harry Wolf of Wolf Associates. It was completed in 1982, and is named in Reese's honor.

Today, the Reese Building houses administrative offices, Financial Aid, and Student Accounts.

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## Robinson

Robinson Hall for the Performing Arts is a state-of-the-art venue that affords the campus and the community access to a slate of contemporary and classical dance, music and theater offerings.

Named for Russell and Sally Dalton Robinson, the three-story, 118,000-square-foot facility contains classrooms, offices and performance and rehearsal spaces for the departments of dance, music and theatre. It was built and equipped for \$28 million, financed through the statewide bond referendum approved by voters in 2000.



The hall's first floor houses a 332-seat proscenium theater, which includes a 23-seat orchestra pit. The theatre has a 3,500-square-foot stage equipped with 18 trapdoors, a curtain 26 feet high and a 60-foot fly-loft for storing and changing scenery. There also is the Black Box Theatre. Throughout the building are rehearsal rooms and labs for costume, scenery and lighting design.

The Robinsons are both Charlotte natives, and they are considered among the most admired and effective community leaders. In addition to leadership roles at Christ Episcopal Church, they have supported professional, educational and charitable institutions, arts and cultural organizations and economic development services.

Russell Robinson II is founding partner of one of North Carolina's largest law firms - Robinson, Bradshaw and Hinson. According to an article in the Charlotte Observer, Robinson majored in English at Princeton University but transferred to Duke University after two years. He went on to obtain his law degree from Duke in 1956. His firm has represented numerous businesses and organizations, including Belk Store Services Inc., the Duke Endowment, Duke Power and the Charlotte Housing Authority. His book "Robinson on North Carolina Corporation Law" is considered a necessity for any aspiring Tar Heel corporate lawyer.

A member of the UNC Charlotte Board of Trustees from 1987-97, Robinson served as chair for eight years. During his board tenure, Robinson was regarded by observers as a "quiet power" for the University; he focused on increasing public and private funding and obtaining UNC system authorization for doctoral degrees beyond joint Ph.D. programs.

In addition to his role as a trustee, Robinson was a director of the UNC Charlotte Foundation. He also has been a trustee of the Duke Endowment and chair of Duke University's Board of Trustees.

Sally Dalton Robinson attended public schools in Charlotte, St. Mary's School in Raleigh and Duke University. She was a member of Phi Beta Kappa and earned a bachelor's degree in history. Among her many civic contributions, she served as an integral founding member of the Levine Museum of the New South and the St. Francis Jobs Program (now the BRIDGE Jobs Program). She also was on the board of the Charlotte Symphony, the Arts and Science Council, McColl Center for the Visual Arts as well as other religious, charitable and economic organizations.

Dedicated November 3, 2004, Robinson Hall was designed by the Charlotte architectural firm of Jenkins Peer Skanska and R.J. Leeper were general contractors, while the firm Biemann and Rowell was the mechanical contractor. Port City Electric served as the electrical contractor; the hall's lighting and acoustical controls were among the most sophisticated in modern theater design at the time of construction.



Today, Robinson Hall is home to the Departments of Dance, Music, and Theatre, the Anne R. Belk Theater, and the Lab Theater.

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## Rowe

The Oliver Reagan Rowe Arts Building honors one of UNC Charlotte's founding fathers. Completed in 1971, the 75,000 square-foot facility was constructed to house the-then departments of Performing and Visual Arts. The building's focal point is an eight-sided theatre that seats 350. It also includes a recital hall, classrooms, offices, practice rooms and a large lobby-

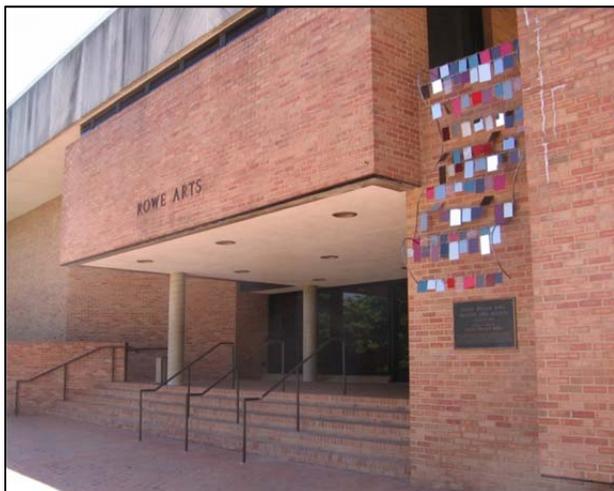
gallery.

Rowe was born Dec. 12, 1902, in Newport, Tenn. He and his wife Maria would become avid supporters of the Charlotte arts community and UNC Charlotte. Rowe's family moved to Charlotte when he was a child. After graduating from Central High School, Rowe attended UNC-Chapel Hill, where he completed a bachelor's degree in electrical engineering. He returned to Charlotte and began work with the R.H. Bouligny engineering firm. He eventually became president of R.H. Bouligny Inc., Powell Manufacturing Co. and Powell Agri-Systems Ltd.



In the 1950s, Rowe supported consolidation of city and county schools, which won him the Charlotte News "Man of the Year Award" in 1958. That same year, Gov. Luther Hodges appointed Rowe to the first Board of Trustees for the Charlotte Community College System. He chaired the board's finance committee, and he was instrumental in soliciting the largest single gift to the-then Charlotte College Foundation (now the Foundation of the University of North Carolina at Charlotte).

Between 1961 and 1963, Rowe made numerous speeches championing the cause of higher education for the Charlotte region. In 1964, the Charlotte Civitan Club presented its Distinguished Citizenship Award in recognition of Rowe's efforts on behalf of the University.



During the rest of the 1960s, Rowe continued to find

new causes for his leadership. A long-time music lover, Rowe began to support the opera and symphony. Eventually, he was elected president of the Charlotte Symphony Orchestra Society, and in 1973, he established, nurtured and financially supported the "Rowe String Quartet" at UNC Charlotte.

In 1987, Rowe was awarded an honorary Doctor of Human Letters. The citation reads in part that "Oliver Reagan Rowe Sr. was a founding father of the University of North Carolina at Charlotte. He helped to dream the dream and to make it come true ... With his vision, he painted a picture of a major state university when others around him saw only the two-year college then existing."

Today, the Rowe Building is home to the Department of Art and Art History.

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## Smith

The Sheldon Phelps Smith Building honors an individual whose foresight helped to chart UNC Charlotte's educational course.

Smith, vice president and general manager of the Douglas Aircraft Company's Charlotte Division, served as a trustee of Charlotte College from 1958 to 1965. He is credited with bringing an engineering program to the institution. Through his generosity, Douglas Aircraft Co. engineers taught at Charlotte College on a released time basis; as many as nine part-time instructors from Douglas were in service at one time.

Born in Redlands, Calif., on March 26, 1910, Smith graduated from Pomona College in 1932 with a bachelor's degree in physics. During World War II, he served as a lieutenant with the Engineering Division of the Navy Bureau of Aeronautics and was assigned to the missiles branch. Following the war, he was a missile project engineer with the Douglas Aircraft Co. Prior to moving to Charlotte, he was an assistant design engineer for missiles at the company's Santa Monica facility.



In addition to starting the University's engineering program, Smith is credited with bringing graduate courses in mathematics and physics to the-then Charlotte College through a cooperative agreement with N.C. State University.

As an advocate for the college, Smith once said, “If we marry the manpower development of this Charlotte College area of some 1 million people to the tremendous demand of technical industries for engineers and scientists, we will accomplish two ends: to help satisfy the great national requirements for engineers and scientists and to improve the usefulness and economic standards of the residents of North Carolina.”



Smith left Charlotte to become vice president of Douglas Aircraft and vice president of Douglas United Nuclear Corp. in Hanford, Wash. He died April 28, 1966.

The Smith Building, completed in 1966, was originally called the Engineering Building. The 71,000 square-foot, \$1.6 million facility was the largest classroom and laboratory building on the campus at the time. When finished, it housed the Computer Center, Mathematics Department, the Geography and Geology Department (now Department of Geography and Earth Sciences) and the Engineering Program.

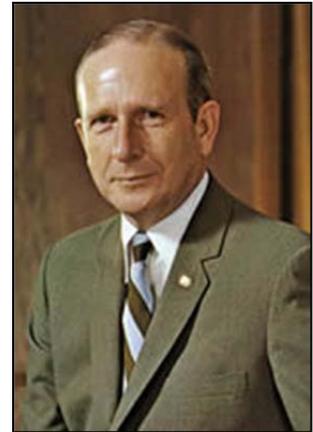
UNC Charlotte dedicated the building in honor of Smith on Dec. 15, 1968, in a ceremony held in the Cone University Center. The Smith family presented a portrait of the building’s namesake to be placed in the facility.

## Storrs

The Thomas I. Storrs Building resulted from the collaboration between Charlotte architectural firm Ferebee, Walters and Associates and New York architects Charles Gwaltmey and Robert Siegel.

Since its completion in 1990, Storrs Building has been used as an “architectural education instrument,” because students and professionals can study its many unique features, as the building is considered a virtual textbook for use of materials and systems. This 87,000-square-foot facility features a complex roof design, natural and artificial lighting systems, double helix stairs and exposure of structural and

environmental systems. Home to the School of Architecture in the College of Arts and Architecture, Storrs Building is appropriately named for an individual who dedicated himself to helping build the University.



Storrs, born in 1918, dropped out of high school during the Great Depression. At the age of 15, he began work as a clerk at the Federal Reserve Bank of Richmond, Va. He would later resume his formal education, enrolling in the University of Virginia, where he completed undergraduate studies. He earned a master’s degree and doctorate in economics from Harvard University.

Originally from Nashville, Tennessee, Storrs joined the then North Carolina National Bank (NCNB) in 1960 as executive vice president. He would later serve as one of the architects who laid the foundation for NCNB to emerge as NationsBank (now Bank of America). Following the retirement of Addison Reese, Storrs became chair and CEO, and he would follow his predecessor’s example as a member of the UNC Charlotte Board of Trustees for nearly 12 years – the last four years as chair. His civic involvement included serving as president of the Business Foundation of North Carolina, vice president of the North Carolina Engineering Foundation and director of the North Carolina Textile Foundation. In 1990, he was inducted in the North Carolina Business Hall of Fame.



A recipient of the UNC Charlotte Distinguished Service Award, Storrs also has a scholarship in his name at the University of Virginia.

Formal groundbreaking for the \$7.5 million Storrs Building was held Aug. 26, 1988. Dedication of the building was Oct. 29, 1990, and a ceremony to name

the facility in honor of Storrs was held Sept. 16, 1992.

Today, the Storrs Building is home to the School of Architecture.

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## Winningham

If one person can be credited for launching the tradition of bringing prominent speakers to the UNC Charlotte campus, then it is Edyth Farnham Winningham, one of the University's pioneering faculty members.



Winningham, born Jan. 26, 1900, in Arthur, N.D., earned a bachelor's degree in modern languages from the University of North Dakota. She later earned a master's in political science from UNC-Chapel Hill, reportedly the first woman in the state to complete the degree.

Beyond teaching high school in North Dakota and North Carolina, Winningham served as a faculty member at the University of Wyoming, the Women's College of the University of North Carolina (now UNC Greensboro) and the UNC College Center in Wilmington (now UNC Wilmington). Her connection to UNC Charlotte dates back to its time as Charlotte College. Winningham joined the faculty in 1947, and she spent the next two decades infecting everyone around her with her passion for politics and international affairs.

Winningham frequently stated that one of her dreams was to bring prominent thought-leaders to the campus to "open up windows" for the institution's students. Her persistence paid off in 1966 with the establishment of the University Forum Council, which sponsored an event each year to bring noted speakers to the campus to address crucial issues facing contemporary society. She chaired the council until spring 1971, despite retiring in 1967 as professor emeritus. According to Special Collections, the final forum was held March 2, 1995. This 30th annual event focused on "Violence: Is Prevention the Key?"

Even after retiring, Winningham continued to lecture on world affairs and international education. She and her husband also established the James and Edyth F. Winningham Scholarship for undergraduate political science majors.

In 1970, Winningham's service to the greater Charlotte community was recognized by the League of Women of

Voters. The organization singled her out for her instrumental role in forming closer ties between the University and the Charlotte community at large, and she was named WBT Radio's Woman of the Year. In 1985, UNC Charlotte awarded her an honorary Doctor of Humane Letters. She died May 27, 1994.

The 10,507-square-foot classroom building which bears her name was constructed in 1965 by F.N. Thompson Inc.; the architectural firm Odell Associates designed the facility.



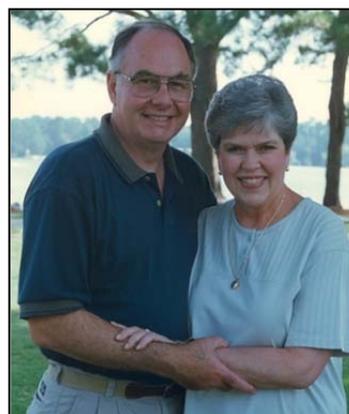
Today, Winningham Hall is home to the Department of Philosophy.

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## Woodward

As students at UNC Charlotte attend classes in the science and technology building on campus, they are walking into the physical manifestation of the work done by Chancellor Emeritus James Woodward and his wife Martha. On November 16, 2005, the building was formally dedicated to recognize the Woodward's 16

years of service and devotion to the University.



The James H. and Martha H. Woodward Hall is a direct result of their vision to help elevate UNC Charlotte to a research institution. The Woodward's worked together to raise awareness of

the University's vital role as an economic engine and build many new partnerships and friendships for the institution. As Chancellor from 1989 to 2005, Jim Woodward was the visionary, strategist, and master builder who guided UNC Charlotte's development as a major research institution. Martha played a vital role in strengthening ties to UNC Charlotte through the

hosting of thousands of guests regionally and nationally. Throughout their 16 years at the University, the Woodward's worked together to bring much needed attention to both the University's strengths and to its resource needs.



Today, Woodward Hall is home to the Departments of Biological Sciences, Computer Science, and Software and Information Systems.

## The 49ers

The nickname, the 49ers, was chosen in recognition of the importance of the year 1949 in the history of the University. UNC Charlotte, which began as an off-campus center of the University of North Carolina at Chapel Hill, would have died in 1949 had Bonnie Cone and her supporters not convinced the N.C. Legislature that Charlotte needed a permanent college. Charlotte College was established that year. Additionally, the campus is located on N.C. Highway 49, and Charlotte has a rich gold mining history -- the term "49ers" symbolizes gold mining. A bronze statue of the 49ers Gold Miner sits in front of the Reese Administration building on campus. The statue recalls the region's history as a gold mining center and symbolizes the pioneering spirit and determination that has led to UNC Charlotte's dramatic growth.



## University Logo

UNC Charlotte's logo has become one of the Charlotte region's most distinctive insignia. The logo is suggestive of a "crown," reminiscent of Queen Charlotte of England, for whom the city of Charlotte is named. The crown emphasizes UNC Charlotte's relationship with the Queen City, alludes to academics with shapes that resemble an open book, and exudes excellence with a torch-like shape at the



top, which can also be interpreted as the top of a graduation cap.

## University Seal

UNC Charlotte became the fourth campus of the University of North Carolina in July of 1965. In the fall of 1965, the new UNC Charlotte seal was chosen by a committee of students (the three upper-class presidents), three faculty members, and the school publicity director, who served as chair. Final approval was given by Acting Chancellor Bonnie Cone.



UNC Charlotte seal's elements are: the modern arches (the tulip design from the canopy of the Kennedy Building) at the top to symbolize that this is a twentieth century university; two Cs in the middle to represent Charlotte College, from which the new campus sprang; and the pine cone at the bottom for the Old North State [land of the longleaf pine]. The date on the seal is 1946, the year in which the institution began as the Charlotte Center of the University of North Carolina.

## Alma Mater

UNC Charlotte's Alma Mater has deep roots in the institution's history. It was part of an "Academic Festival March" composed for UNC Charlotte by James Helme Sutcliffe, a Charlotte composer and music critic who lived in Germany at the time. Dr. Loy

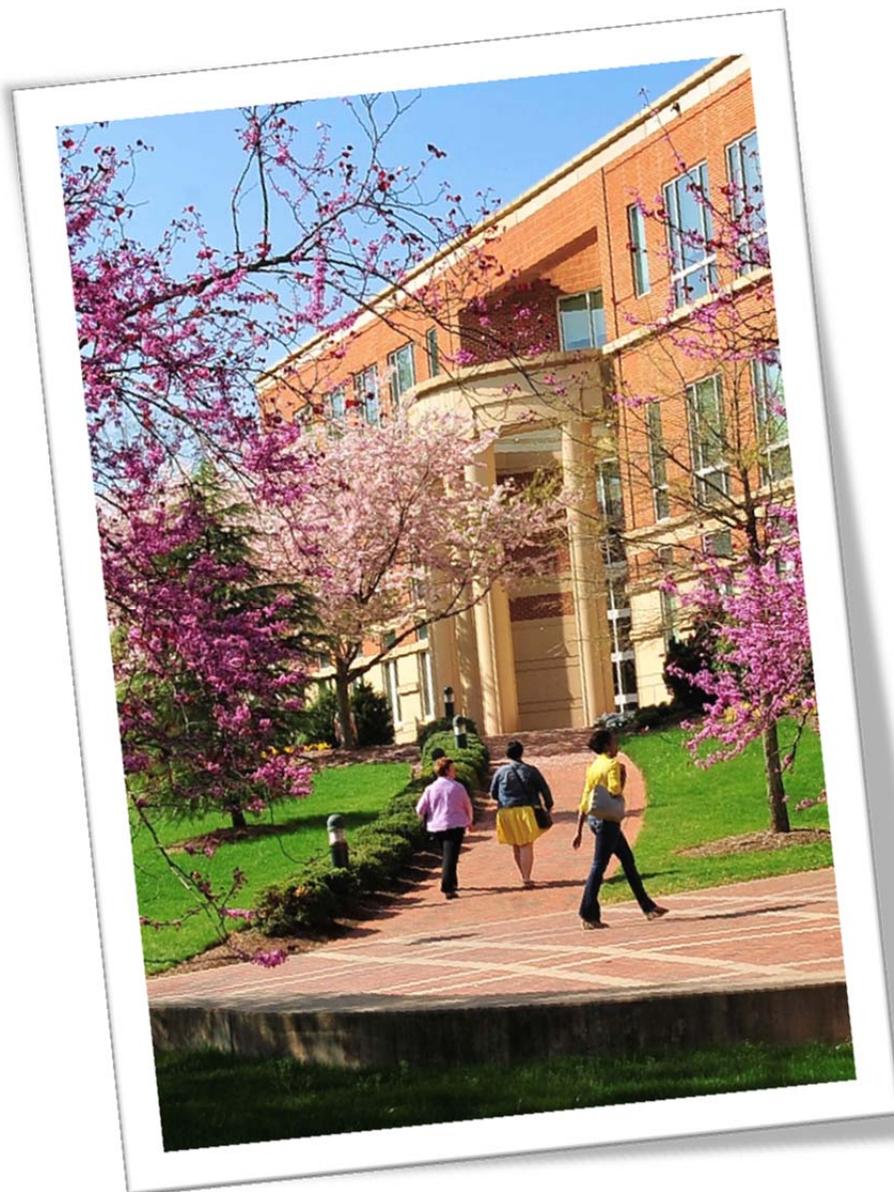


Witherspoon, professor of religious studies, commissioned the March in 1965 when he learned that Charlotte College would become a campus of The University of North Carolina. The March was first performed in 1967 at the installation of Dean W. Colvard as UNC Charlotte's first chancellor. Afterwards, it was performed as a recessional at every Commencement during Dean W. Colvard's tenure as chancellor. When UNC Charlotte founder Bonnie Cone heard the March, she said, "I can hear an alma mater in it," referring to a hymn-like refrain. Dr. Robert Rieke, a professor of history, also heard an alma mater in it.

On a 1990 trip to Germany, Rieke visited Sutcliffe, picked up a recording of the March, and began writing words to fit the final refrain. On Christmas Eve 1991,

he sent Bonnie Cone the words and music as a Christmas present to her and to the University, from which he had retired a year earlier. Chancellor James H. Woodward approved the composition as the University's Alma Mater in April 1992. It was sung for the first time at the following May Commencement and has been performed at every Commencement since.

# *Admission* to the University



# Admission to the University

<http://admissions.uncc.edu>

The University considers applications for admission without regard to race, color, national origin, religion, sex, sexual orientation, age, or disability. It reserves the right to withhold the admission of applicants who fail to meet any of the requirements for admission and to restrict enrollments as required by budgetary or other constraints.

## Enrollment Management

The Division of Enrollment Management actively identifies, counsels, recruits, and enrolls a qualified and diverse population of undergraduate students and offers services that promote student retention and success. The Offices of Undergraduate Admissions, Student Financial Aid, University Registrar, Adult Students and Evening Services, Residency Determination Office, University Scholarship Office, Call Center Operations, and Solutions Management report to the Associate Provost for Enrollment Management. These offices, in collaboration with faculty and staff in other administrative units, work to provide a seamless transition from admission to enrollment to graduation and beyond.

The Enrollment Management units interface with most campus entities, particularly the faculty, Academic Affairs, Student Affairs, Alumni Affairs, Academic Services, and Business Affairs. Additionally, these offices work regularly with external entities such as high schools, community colleges, government agencies, community groups, and relevant professional organizations. Visit the Enrollment Management website at [enrollment.uncc.edu](http://enrollment.uncc.edu) for more information.



## Admissions Process

Applications for admission are reviewed when all required credentials are received. Incomplete applications will not be reviewed. Official transcripts must be received for the application to be reviewed. The review focuses on the academic history of the applicant and considers all relevant factors. The intent of the University is to offer admission to applicants whose credentials indicate a strong likelihood for success in their selected curricula. It is not possible to

accommodate all the applicants who meet the minimum criteria, and some programs select the best qualified from those meeting the minimum requirements.

By delegation from the Chancellor, the Admissions Advisory Committee has the authority to grant limited exceptions to the standard entrance requirements set forth in this *Catalog* and prescribed by the University of North Carolina Board of Governors policies. Exceptions for student-athletes are made by the Chancellor after review and recommendation by the Director of Athletics, the Faculty Athletics Representative, and the Athletic Academic Center under the direction of the Provost and Vice Chancellor for Academic Affairs. Notification of the admissions decision is mailed as soon as the decision is made. For programs that have a special admissions process, such as Architecture and Nursing, notification will be later than for other programs.

Students planning to live on campus should complete the online housing form at [housing.uncc.edu](http://housing.uncc.edu) after they receive confirmation of their acceptance in the mail.

Information about undergraduate programs is available from:

Office of Undergraduate Admissions  
Cato Hall  
University of North Carolina at Charlotte  
9201 University City Boulevard  
Charlotte, North Carolina 28223-0001  
Telephone: 704-687-5507  
Fax: 704-687-1664  
E-mail: [admissions@uncc.edu](mailto:admissions@uncc.edu)  
Web: [admissions.uncc.edu](http://admissions.uncc.edu)

## International Admissions

International students should contact the Office of Undergraduate Admissions by telephone at 704-687-5507, by fax at 704-687-1664, or by email at [intl.admissions@uncc.edu](mailto:intl.admissions@uncc.edu). The primary focus is the admission of students on non-immigrant visas. Undergraduate Admissions processes applications, evaluates credentials, makes admissions decisions, and serves as consultant to prospective students,

academic advisors, sponsors, and agencies representing international students and departments. When students are admitted, Undergraduate Admissions provides documentation to the International Student/Scholar Office for Immigration purposes. Application forms and additional information are available online at [admissions.uncc.edu/international](http://admissions.uncc.edu/international).



## When to Apply

Applicants are advised to submit their applications for admission well in advance of the schedule below. The suggested deadline dates are based on the amount of time generally required to process an application and inform the applicant of the admission decision. **Early application is generally advantageous and particularly for programs with limits on the number of new students that can be accepted.**

Freshman Deadline Dates	
Applications Completed By:	Applicants Notified of Decision By:
November 1	January 31
February 1*	April 1

\*Freshman students whose applications are completed after the February 1 date will be considered on a space available basis.

Transfer Deadline Dates			
Term	Suggested Application Date	Priority Deadline	Term Begins
Fall	March 15	May 15	August
Spring	September 1	November 15	January
1 <sup>st</sup> Summer	January 1	May 1	May
2 <sup>nd</sup> Summer	January 1	May 15	July

Deadlines for **international students** are earlier. Please refer to the Undergraduate Admissions website for current deadlines.

**The University may alter the dates for acceptance of applications without further notice in accordance with available resources and the enrollment**

**limitation established by the North Carolina General Assembly. For the most current deadlines, please refer to the Undergraduate Admissions website at [admissions.uncc.edu](http://admissions.uncc.edu).**

## Admission Application

The applicant is responsible for supplying all required credentials. Credentials must be official documents and not student copies. Nondisclosure of an applicant's complete academic history will result in rejection of the application and/or immediate dismissal from the University.

### Freshmen Applicants

For Freshman Admission, the application includes:

- 1) A completed online *Application for Undergraduate Admission* form.
- 2) Application fee of \$60 (nonrefundable and nondeductible).
- 3) Official high school transcript showing rank in class, GPA computed on a 4.0 scale, and senior courses in progress. (A high school equivalency certificate or GED may be submitted in lieu of a high school diploma.)
- 4) Official Scholastic Assessment Test (SAT) and/or American College Testing Program (ACT) scores, with writing section, required.
- 5) Additional credentials, specified below, for international applications.

### Transfer Applicants

For Transfer Admission, the application includes:

- 1) A completed online *Application for Undergraduate Admission* form.
- 2) Application fee of \$60 (nonrefundable and nondeductible).
- 3) Official high school transcript. (This may be waived for applicants who have already completed a B.A., B.S., or B.F.A. degree.)
- 4) One official transcript from every college attended, including summer sessions and any dual enrollment courses taken while enrolled in high school.
- 5) Additional credentials, specified below, for foreign educated applicants.

### International Applicants

For Admission of International Applicants, the application also includes:

- 1) Official scores on the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) if the applicant's native language is something other than English.
- 2) A course by course evaluation for all coursework completed outside of the United States.

- 3) A Statement of Financial Responsibility showing the applicant's financial resources while in the United States.

**Any student whose native language is not English will be required to submit proof of English language proficiency.**

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## Admission Requirements

### Freshman Admission Requirements

Candidates for admission to freshman standing, including transfer applicants who present fewer than 24 hours of transferred credit, must:

- 1) Submit a completed application for admission. A completed application is defined as the application, test scores, and the official documents from all schools attended.
- 2) Have graduated from an approved or accredited high school or have earned a high school equivalency certificate or G.E.D.
- 3) Present the following **High School Course Units**: 4 units in *English*, emphasizing grammar, composition and literature; 4 units in *mathematics*, including Algebra I, Algebra II, and geometry, and a higher level mathematics course for which Algebra II is a prerequisite; 2 units in *social studies*, including one unit in U.S. history; and 3 units in *science*, including at least one unit in a life or biological science (e.g., biology), at least one unit in a physical science (e.g., chemistry, physics, physical science), and at least one laboratory course; and 2 units of the same *foreign language*. It is *recommended* that the candidate for admission also complete a third unit of the same foreign language. Seniors should select a challenging academic schedule that includes English, math, science, social studies (history), and a foreign language.
- 4) Present a satisfactory combination of high school grades and SAT or ACT scores.
- 5) Present all college-level work completed in high school by submitting one official copy from any college or university attended.
- 6) Request official Advanced Placement (AP) and International Baccalaureate (IB) test results to be sent directly to the Office of Undergraduate Admissions (Code 5105).
- 7) Satisfy any additional requirements for acceptance into their chosen major (if any).
- 8) Present verification of specific immunizations required by North Carolina state law described later in this section of the *Catalog*. An *Immunizations Form* is available to download online at [studenthealth.uncc.edu](http://studenthealth.uncc.edu).

## Transfer Admission Requirements

Candidates for admission as transfer students must:

- 1) Submit a completed application for admission. A completed application is defined as the application, test scores, and the official documents from all schools attended, including summer sessions and dual enrollment courses from high school.
- 2) Satisfy the requirements for freshman admission if they do not present at least 24 hours of transferred credit accepted by UNC Charlotte.
- 3) Present the High School Course Units (required of all students under the age of 21) specified in the Freshman Admission Requirements. Transfer applicants who did not complete the required course units in high school may earn an Associate in Arts, Associate in Science, or Associate in Fine Arts degree OR complete six semester hours (or 9 quarter hours) that are transferable to UNC Charlotte in each of the following subject areas: Mathematics, English, social science, and natural science. Students who graduated from high school in June 2004 and beyond must have, in addition to the requirements above, an additional 6 semester hours of foreign language for a total of 30 semester hours of credit.
- 4) Present an academic average of at least *C* (a grade point average of at least 2.0 on a 4.0 scale) on all post-secondary courses attempted, as calculated by the UNC Charlotte Office of Undergraduate Admissions.
- 5) Be in good standing at the last college or university attended.
- 6) Satisfy any additional requirements for acceptance into their chosen major (if any). For more information concerning selective major requirements, please consult the Admissions website at [admissions.uncc.edu](http://admissions.uncc.edu).
- 7) Present verification of specific immunizations required by North Carolina state law described later in this section of the *Catalog*. An *Immunizations Form* is available to download online at [studenthealth.uncc.edu](http://studenthealth.uncc.edu).

**Refer to the Undergraduate Admissions website for the most current requirements.**

**IMPORTANT NOTE:** *Failure to indicate all institutions of higher education attended on any application for admission or readmission to UNC Charlotte is considered falsification of the application and will result in forfeiture of the transfer of all credits from those institutions attended, as well as possible disciplinary action.*

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## Placement/Proficiency Procedures

Placement and proficiency examinations are given to determine the appropriate courses for all new students

to take in mathematics and foreign language and for non-native speakers of English to take in English.

### Foreign Language Proficiency Procedures

There are no foreign language requirements associated with the General Education Program. Students are required to take foreign language only if it is a requirement of their college or major department. The College of Arts + Architecture and the College of Liberal Arts & Sciences have a foreign language requirement.

All students within these colleges are required to demonstrate proficiency in a foreign language of their choice by completing coursework through at least the 1202 level. In order to meet this proficiency requirement, a student may: (1) complete the coursework at UNC Charlotte; (2) complete three years of the same language in high school through level three; (3) achieve a satisfactory score on the foreign language placement exam; (4) transfer in the equivalent courses from another institution; or (5) place out of or earn transfer or transient credit for 1201 and complete the 1202 course, or complete 1201 and place out of or earn transfer or transient credit for 1202. Additionally, students in the College of Liberal Arts & Sciences may demonstrate proficiency by transferring in with an AA, AS, or AFA degree.

Although all students in the College of Arts + Architecture and College of Liberal Arts & Sciences are subject to the 1202 proficiency requirement, students in select departments will additionally have to satisfy a proficiency requirement through the intermediate (2000) level. Students should consult with their major department to determine whether or not they are required to complete the intermediate proficiency requirement.

*Continuing students*, who enrolled prior to Fall 2003 and successfully completed three units of the same foreign language in high school, are exempt from taking the language proficiency test and are considered proficient in that language for General Education; however, certain majors require additional foreign language coursework. Students who do not present three units of the same foreign language in high school must comply with the policy below.

*Freshmen and transfers* of all majors who entered UNC Charlotte before Fall 2003, are required to pass or place out of the 1102 or 1202 course level of a foreign language. Students who continue study of a language taken in high school must take a UNC Charlotte Foreign Language Placement Exam. These placement exams are offered in French, German, and Spanish during new student orientations and on a regular basis through the school year. Contact the Department of Languages and Culture Studies for additional

information.

### Mathematics Placement Procedures

Transfer students who do not have transferrable mathematics credits required for their program of study must take a placement examination to determine their appropriate entry-level MATH course. Students with college-level transfer math credit will be placed based on the class level of the credit received. Math placement for new freshmen is based on their determined mathematics placement level. Contact the Department of Mathematics and Statistics for additional information.

### University Writing Program Placement Procedures for Non-Native Speakers of English

Undergraduate degree students who are non-native speakers of English have the option of taking a specially designated International section of UWRT 1101 (Writing and Inquiry in Academic Contexts). UWRT 1101 (International) offers students extended opportunities to write in U.S. academic settings while engaging with issues of language difference and diversity in global settings. In addition to taking UWRT 1101 (International), students can use the Writing Resource Center (WRC) for additional support. To learn more about UWRT 1101 (International) and the WRC, contact the University Writing Program or the Office of International Programs.

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## Additional Requirements for Acceptance into Specified Programs

### Accounting

*Freshman* admission is competitive. *Transfers* may be admitted to a pre-accounting major if they present at least a 2.5 GPA in college transferable coursework as calculated by the UNC Charlotte Office of Undergraduate Admissions. Students will work with the Belk College of Business to apply for an upper-division Accounting major.

### Architecture

Admission to the School of Architecture (SoA) is competitive and requires two separate admission processes: admission to the University of North Carolina at Charlotte and admission to the School of Architecture (SoA). When applying to the University, applicants should designate "Architecture" as their intended major. Approximately one week after the payment of the University application fee, applicants will receive an email notification with their username and password to access the online SoA Application.

Early applicants are given priority in the SoA admission process; therefore, applicants should complete the SoA Application prior to the posted deadlines on the SoA website at [soa.uncc.edu](http://soa.uncc.edu).

Based on a review of your academic standing and SoA Application, applicants may be selected for an individual interview during an Open House/Interview event. At the Open House, applicants will learn about the School of Architecture through an information session, a tour of the SoA building and facilities, and small group discussions with students and faculty. Applicants will also have a thirty-minute individual interview, for which they will be asked to bring a collection of their original, creative work for discussion. Examples of creative work might include traditional forms of art (such as freehand drawing, graphic design, painting, photography, and sculpture) or other forms of creative expression (such as carpentry, craft, ceramics, dance, film-making, model-making, music, poetry, and set/costume design).

Applicants must be admitted to the University before being admitted to the SoA. Final decisions regarding admission to the SoA will be made on or before April 1. The SoA admits applicants for the Fall semester only. If students are not admitted to the SoA, their acceptance to the University remains unchanged. Many applicants who are initially denied admission to the SoA choose to enroll at the University and reapply to the SoA the following year. Details regarding the admission process can be found on the SoA website at [soa.uncc.edu](http://soa.uncc.edu).

## Art

Admission to the B.A. program is a two-step process that includes a completed application for admission to the university and, upon admittance to the university, a portfolio submission to the art department. Freshman or transfer students seeking admission to the B.A. degree program with or without K-12 Art Teacher Licensure must submit a completed application for Fall admission to the University by January 31 to be eligible to submit a portfolio for consideration during the Priority Review in mid-March. Applicants who miss the previous deadline must submit a completed application for Fall admission to the University by March 1 to be eligible to submit a portfolio for consideration during the Space Available Review in mid-April. For the most current deadlines, refer to the Undergraduate Admissions website at [admissions.uncc.edu](http://admissions.uncc.edu). The Department of Art and Art History will select students to admit directly to Art after the portfolio reviews. Applicants who are not approved as Art majors after the portfolio review are asked to choose another major before enrollment. Applicants seeking admission to the B.F.A. program will work directly with the Department of Art and Art History to complete the

application process after enrollment in the B.A. program.

## Biology

Freshman admission is competitive and, if admissible, freshmen are admitted as Pre-Biology majors. Freshmen must present a minimum SAT-Math score of 550 or ACT-Math subscore of 23.

## Business Administration (BSBA degree programs)

*Freshman* admission is competitive and if admissible, freshmen are admitted as Pre-Business majors. *Transfers* may be admitted to a pre-business major if they present at least a 2.5 GPA in college transferable coursework as calculated by the UNC Charlotte Office of Undergraduate Admissions. Transfer students may not have more than two failed attempts in a prerequisite course. Students will work with the Belk College of Business to apply for an upper-division Business Administration major.

## Computer Science

*Freshman* admission is competitive and, if admissible, freshmen must present a minimum SAT-Math score of 500 or ACT-Math subscore of 22. *Transfers* must present an overall GPA of at least 2.5 with no grade less than C in computer science courses.

## Economics

*Freshman* admission is competitive and if admissible, freshmen are admitted as Pre-Economic majors. *Transfers* from other institutions must present a GPA of at least 2.5, as calculated by the UNC Charlotte Office of Undergraduate Admissions, to be admitted into a pre-economics major. Students will work with the Belk College of Business to apply for an upper-division Economics major.

## Education

*Freshmen* interested in teacher education may be classified as Pre-Education students and should declare their interest to receive appropriate advising services. Admission to a Teacher Education program typically occurs at the end of the sophomore year and requires: (1) a GPA of at least 2.5 in courses taken and/or accepted on transfer by UNC Charlotte; (2) 45 semester hours of completed work (3) a grade of C or above in both EDUC 2100 and SPED 2100 or MDSK 2100 for secondary majors; and (4) test scores at or above North Carolina Department of Public Instruction (NCDPI) cut-score levels on Praxis I: Pre-Professional Skills Tests in Reading, Mathematics, and Writing. *Transfers* must meet the same requirements.

## Engineering

*Freshman* admission is competitive. Based upon an

overall evaluation of high school record with particular emphasis on advanced courses in math and science and test scores, freshmen may be admitted directly to an engineering major or to engineering undecided. Specifically, freshmen MUST present a pre-calculus equivalent, a math course during the high school senior year, no grades below C in any math courses, and a minimum SAT-Math score of 550 or ACT-Math subscore of 23. *Transfers* must present a GPA of at least 2.5 and have completed a pre-calculus course equivalent to MATH 1103. All transfers will be admitted to the lower division of a department, and evaluation of transfer credits to a program by the department chair will follow the guidelines of the North Carolina Engineering Transfer Board. Transfers from an ABET accredited engineering program who do not have a 2.5 GPA may be admitted upon the recommendation of the chair of the major department.

### Engineering Technology

*Freshmen* have to meet regular freshman admission requirements. *Transfers* who are not interested in the distance education program must meet regular transfer admission requirements. Transfers are only accepted into the distance education program with the following requirements: (1) an Associate in Applied Science degree, or its equivalent, in a field appropriate to the option they plan to enter; (2) an overall GPA of at least 2.2 on all courses taken toward the two-year degree (exceptions to this requirement will be considered on the basis of individual merit.); and (3) satisfactory completion of the prerequisite background courses for the option they plan to enter. Acceptance of the A.A.S. degree indicates the acceptance of up to 64 hours toward the Bachelor of Science in Engineering Technology degree only. These hours are not valid toward any other degree program at the University.

### Music

Admission is competitive for both freshman and transfer applicants based on an audition interview. All applicants must first apply to the Office of Undergraduate Admissions. If students are admissible based on applicable freshman admission or transfer admission standards, they will be admitted as Pre-Music majors. Their admission letter will detail for the accepted student audition dates and information for the audition. If the student is approved for acceptance after the audition, their major will be changed to Music or Music Performance. If the student is not accepted into music after the audition, they will be asked to choose another major at the University.

### Nursing

Freshman admission is competitive and, if admissible, freshmen are admitted as Pre-Nursing majors. Applicants are admitted to the Nursing major only at the upper-division or junior year. Admission as Pre-

Nursing does not automatically qualify an applicant for acceptance into the upper-division Nursing major. Transfers who have an overall GPA of at least 3.0 but have not completed all prerequisites may be admitted as Pre-Nursing; however, this does not automatically qualify the applicant for acceptance into the upper-division Nursing major. In addition, transfer students may not earn more than one grade of C in any prerequisite courses. Admission to the upper-division Nursing major is competitive and not all applicants can be accommodated. Only the best qualified applicants are accepted for the limited spaces available. Applications for the upper-division BSN major, including all supporting documents and transcripts, must be received by January 31 in order to be considered for admission into the Fall semester and by August 31 to be considered for admission the Spring semester. New students who meet the general freshmen or transfer admission requirements, but do not meet the requirements for admission to Pre-Nursing, will be asked to choose another major at the University. Students will not be able to apply for change of major into Nursing after enrollment.

Transfer students who hold a current license as a registered nurse (RN) in North Carolina are eligible to apply for the RN/BSN completion program. Students who have an overall GPA of at least 2.0 but have not completed all General Education courses, prerequisites, and foreign language requirements may be admitted as Pre-RN/BSN. Admission into the upper-division RN/BSN program is competitive. Applications for the upper-division RN/BSN program, along with all required transcripts, must be received by March 15 to be considered for the Fall semester and by September 15 to be considered for the Spring semester.

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## Admission for Undergraduate Certificate Programs

Students who wish to apply for undergraduate certificate programs should consult the Office of Undergraduate Admissions website at [admissions.uncc.edu](http://admissions.uncc.edu). If a student has already received a bachelor's degree, he/she must meet second baccalaureate degree admissions requirements. Students who have not received a bachelor's degree and have attended a college or university must meet transfer admissions requirements. Students with a high school diploma who have not attended a college or university must meet freshman requirements.

***Please note: computer science undergraduate certificate programs have additional admissions requirements. In order for a student to be admitted to a computer science undergraduate certificate program,***

students must have earned a bachelor's degree in an academic field other than computer science. These students must also present at least one semester of a college level calculus course with a grade of D or above.

## Health Requirements

### Health Insurance Requirements

Health insurance is required of all degree-seeking undergraduate students with six or more on-campus credit hours; all degree- or certificate-seeking graduate students with three or more on-campus credit hours; and all international students with an F-1 or J-1 visa, regardless of credit hours.

Students who are currently uninsured may enroll in the Student Health Insurance Plan by completing the enrollment form found on the Student Health Center website at [studenthealth.uncc.edu](http://studenthealth.uncc.edu). Pricing is available on the site as well.

Students with existing health insurance coverage must supply this information online to the Student Health Center every Fall and Spring semester by the posted due date. See the Student Health Center website above for details. Failure to comply will result in automatic enrollment in the Student Health Insurance Plan for the semester.

### Immunization Requirements

To protect all students at UNC Charlotte, North Carolina state law requires proof of immunizations upon entering the University or within thirty calendar days of the start of a student's first semester. Under North Carolina regulations, students not in compliance will be dropped from all courses. **Upon learning of admission to the University, students should submit their immunization records immediately.** Although a health physical is not required for admission to the University, students are strongly encouraged to contact their healthcare provider or local health department to discuss additional recommendations for vaccinations. Further details regarding the immunization requirements including exemptions are available online from the Student Health Center at [studenthealth.uncc.edu](http://studenthealth.uncc.edu). Please consult the website for more detail about the requirements and before submitting records to the University.



COLLEGE/UNIVERSITY VACCINES AND NUMBER OF DOSES REQUIRED						
Vaccines Required	Diphtheria, Tetanus, and/or Pertussis <sup>1</sup>	Polio <sup>2</sup>	Measles <sup>3</sup>	Mumps <sup>4</sup>	Rubella <sup>5</sup>	Hepatitis B <sup>6</sup>
Doses Required	3	3	2	2	1	3

**FOOTNOTE <sup>1</sup>** – DTP (Diphtheria, Tetanus, Pertussis), DTaP (Diphtheria, Tetanus, acellular Pertussis), Td (Tetanus, Diphtheria), Tdap (Tetanus, Diphtheria, Pertussis): 3 doses of tetanus/diphtheria toxoid of which one must have been within the past 10 years.

Those individuals enrolling in college or university for the first time on or after July 1, 2008 must have had three doses of tetanus/diphtheria toxoid and a booster dose of tetanus/diphtheria/pertussis vaccine if a tetanus/diphtheria toxoid or tetanus/diphtheria/pertussis vaccine has not been administered with the past 10 years.

**FOOTNOTE <sup>2</sup>** – An individual attending school who has attained his or her 18<sup>th</sup> birthday is not required to receive polio vaccine.

**FOOTNOTE <sup>3</sup>** – Measles vaccines are not required if any of the following occur: Diagnoses of disease prior to January 1, 1994; An individual who has been documented by serological testing to have a protective antibody titer against measles; or An individual born prior to 1957. An individual who enrolled in college or university for the first time before July 1, 1994 is not required to have a second dose of measles vaccine.

**FOOTNOTE <sup>4</sup>** – Mumps vaccine is not required if any of the following occur: An individual who has been documented by serological testing to have a protective antibody titer against mumps; An individual born prior to 1957; or Enrolled in college or university for the first time before July 1, 1994. An individual entering college or university prior to July 1, 2008 is not required to receive a second dose of mumps vaccine.

**FOOTNOTE <sup>5</sup>** – Rubella vaccine is not required if any of the following occur: 50 years of age or older; Enrolled in college or university before February 1, 1989 and after their 30<sup>th</sup> birthday; An individual who has been documented by serological testing to have a protective antibody titer against rubella.

**FOOTNOTE <sup>6</sup>** – Hepatitis B vaccine is not required if any of the following occur: Born before July 1, 1994.

### International Students

Vaccines are required as noted above. Additionally, International students are required to have a TB skin test and negative result within the 12 months preceding the first day of classes (chest x-ray required if test is positive).

### Freshman and Transfer Students

Immunization records are not sent with other admission records from your previous school. You must request your immunization records be sent directly to the Student Health Center.

## Withdrawal for Non-Compliance and Reinstatement

Students who are not in compliance as determined by the Student Health Center (SHC) will be withdrawn from all of their classes by the Office of the Registrar at the end of the thirty (30) day period. Students are therefore strongly encouraged to submit their immunization records prior to the start of the semester. The SHC will also monitor students who are not in compliance but have been approved by the SHC for an extension to receive the necessary immunizations as indicated by a physician's letter. Once the date for the extension expires, and if the student is still not in compliance, the SHC will notify the Office of the Registrar that the student has failed to comply with Immunization Requirements. The Office of the Registrar will then withdraw the student from their classes.

If a student is able to provide evidence to the SHC documenting compliance before the end of the last class day of the semester, he/she will be reinstated into their classes. This reinstatement pertains only to student enrollment status and does not in any way guarantee that the academic, financial, and/or other consequences of noncompliance with Immunization Requirements will be remedied. Such consequences may include, but are not limited to, impact on immigration status, financial aid eligibility, University housing, and 49er ID card accounts. Additionally, reinstated students might not be eligible to make up class work, assignments, tests, or exams as faculty are not obligated to allow make-up work. Furthermore, class work, assignments, tests, or exams missed as a result of being withdrawn for noncompliance with Immunization Requirements will not be a valid basis for a grade appeal.

Decisions under this policy cannot be appealed, and students will not be reinstated if they become compliant after the last class day of the semester.

## Contact Information

Questions regarding this mandatory requirement may be directed to the Student Health Center Immunizations Department at 704-687-7424.

Please mail your records to:

UNC Charlotte Student Health Center  
Attn: Immunization Department  
9201 University City Blvd  
Charlotte, NC 28223

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## Adult Students Admission Program (ASAP)

Adult students, 24 years of age or older who have been out of school for five or more years and present appropriate educational credentials, are encouraged to



make application through the Office of Undergraduate Admissions. This unique program offers adults the opportunity for special admissions status, an academic advisor through the Office of Adult Students and

Evening Services (OASES), and adult transitional support services throughout the first two years of their enrollment. Students who declare a major are advised through their major department.

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## Admission for Second Baccalaureate Degree

Students who have earned a bachelor's degree from UNC Charlotte and wish to earn a second bachelor's degree should apply for admission through the Office of the Registrar. Students who have earned a bachelor's degree from an accredited institution other than UNC Charlotte should apply through the Office of Undergraduate Admissions. The University automatically waives the General Education requirements for each second degree student. Students may apply for admission to a program leading to a second degree of the same level if the following requirements are met:

- 1) A completed application must be sent to the Office of Undergraduate Admissions in accordance with the published application dates.
- 2) The major field selected must be different from that of the first degree.
- 3) The degree sought must be different from the first when that degree was granted by UNC Charlotte.
- 4) The applicant must meet the requirements for acceptance into the selected field.

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## Readmission of Former Students

For details on readmission of former students, please see the "Degree Requirements and Academic Regulations" section of this *Catalog*.

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## Others Eligible for Admission

### Escrow Program

The Escrow Program provides an opportunity for highly qualified students to take college credit courses while enrolled in secondary school. Records of credit earned will be maintained for use at the University or at another institution of higher learning. The program is designed for those students who have exhausted their course offerings at their high school and need to supplement their high school curriculum with college courses. The program is not designed for students who wish to take courses to fulfill high school requirements.

Applicants recommended for participation in the program usually have shown very advanced ability in particular academic areas. The recommendations are normally made by the secondary school principal and are reviewed by the Director of Undergraduate Admissions on an individual basis. Escrow students are not permitted to live in campus housing.

Requests for additional information and application forms should be directed to the Office of Undergraduate Admissions.

### Non-Degree Students

Non-degree students are those who are not seeking a degree at UNC Charlotte. On very rare occasions, if space is available, they may enroll in undergraduate courses at the University until they have attempted a total of 18 semester hours with grade evaluation. Students who did not gain admission to a degree-seeking program will not be admitted as a non-degree student. Admission as a non-degree student is up to the discretion of the Office of Undergraduate Admissions. Regular degree students will have preference for places in classes. Non-degree students are expected to conform to the standards required of all students. After reaching the 18-hour limit, non-degree students must be reviewed and be acceptable for regular degree status before continuing at the University.

Non-degree students who have done previous college work (including UNC Charlotte) must be eligible to return to the institution last attended.

The student must be 18 years of age or over and must understand at the time of his/her registration that the work completed in non-degree student status will be evaluated in terms of major department and degree requirements only after the student's formal admission to a degree program.

### Visiting Students

Students enrolled at other colleges and universities who wish to take specified courses at the University in a given semester or term may be admitted as visiting students. They register on a space available basis after UNC Charlotte degree-seeking students and must submit a new application for each term they would like to attend as a visiting student. Visiting students are admitted for the Summer terms only. Visitors are not permitted to enroll for Fall or Spring semesters.

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## New Student Orientation/ Registration

New undergraduate students are encouraged to participate in one of the **Student Orientation, Advising, and Registration (SOAR)** sessions scheduled during the Summer and immediately prior to the start of the Fall and Spring semesters. Separate programs are offered for freshmen, transfers, and their parents and family members. Activities include academic advising, introduction to academic support services, student organizations, and campus life; and registration for classes. Contact the Office of New Student and Family Services at 704-687-2375 or visit [soar.uncc.edu](http://soar.uncc.edu) for additional information.



### International Student Orientation

An orientation, held at the beginning of every semester, is required for non-resident (F-1 and J-1 visas) students. Orientation topics include immigration, academics, cultural adjustment, and program opportunities. Contact the International Student/Scholar Office or visit their website online at [isso.uncc.edu](http://isso.uncc.edu) for more information.

# *University Regulation* of Student Conduct



# University Regulation of Student Conduct

As students willingly accept the benefits of membership in the UNC Charlotte academic community, they acquire obligations to observe and uphold the principles and standards that define the terms of the UNC Charlotte community.

The University of North Carolina at Charlotte has enacted two codes governing student conduct: *The Code of Student Academic Integrity* and *The Code of Student Responsibility*. The University has also enacted a program for the prevention of the use of illegal drugs and alcohol abuse, as well as a policy regulating smoking on campus. All UNC Charlotte students are obligated to be familiar with these codes and policies and to conduct themselves in accordance with the standards set forth.

Additionally, the Student Government Association has created a code called *The Noble Niner* that solidifies the high standard of morals, principles, and integrity that all students should strive to uphold to bolster the growing reputation of excellence at UNC Charlotte.

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## The Code of Student Academic Integrity

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<http://legal.uncc.edu/policies/up-407>

The Code of Student Academic Integrity governs the responsibility of students to maintain integrity in academic work, defines violations of the standards, describes procedures for handling alleged violations of the standards, and lists applicable penalties. The following conduct is prohibited in the *Code* as violating those standards:

- A. Cheating.** Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices in any academic exercise. This definition includes unauthorized communication of information during an academic exercise.
- B. Fabrication and Falsification.** Intentional and unauthorized alteration or invention of any information or citation in an academic exercise. Falsification is a matter of altering information, while fabrication is a matter of inventing or counterfeiting information for use in any academic exercise.
- C. Multiple Submission.** The submission of substantial portions of the same academic work (including oral reports) for credit more than once without authorization.

- D. Plagiarism.** Intentionally or knowingly presenting the work of another as one's own (i.e., without proper acknowledgment of the source). The sole exception to the requirement of acknowledging sources is when the ideas, information, etc., are common knowledge. (NOTE: For more information regarding plagiarism, see PLAGIARISM Appendix at [legal.uncc.edu/policies/up-407#appendix](http://legal.uncc.edu/policies/up-407#appendix))

- E. Abuse of Academic Materials.** Intentionally or knowingly destroying, stealing, or making inaccessible library or other academic resource material.

- F. Complicity in Academic Dishonesty.** Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

- G. Group Work.** For group work, responsibility for ensuring that academic integrity standards are followed is shared by all members of the group. In cases where an individual student is able to demonstrate that he/she neither knew of nor participated in academic dishonesty, that individual student is not guilty of academic dishonesty.

A full explanation of these definitions, and a description of procedures used in cases where student violations are alleged, is found in the complete text of University Policy 407, *The Code of Student Academic Integrity*. This *Code* may be modified from time to time. Students are advised to contact the Dean of Students Office or visit [legal.uncc.edu/policies/up-407](http://legal.uncc.edu/policies/up-407) to ensure they consult the most recent edition.

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# The Code of Student Responsibility

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<http://legal.uncc.edu/policies/up-406>

## Conduct Rules and Regulations (Code Chapter 5)

The University of North Carolina at Charlotte strives to assist students in their development by creating a community that values scholarship, integrity, respect, accountability, dignity, honor, compassion, character, and nobility. The purposes of the student conduct process are to:

1. Maintain an environment that supports and enhances the educational purpose of the University;
2. Protect the health, safety, welfare, and property of all persons in the University community;
3. Encourage appropriate standards of individual and group responsibility to the University community; and
4. Foster the personal, social, and ethical development of members of the University community.

In accordance with The University of North Carolina Board of Governors' Policy [700.4.2](#):

1. The University embraces and strives to uphold the freedoms of expression and speech guaranteed by the First Amendment of the U.S. Constitution and the North Carolina Constitution. The University has the right under appropriate circumstances to regulate the time, place, and manner of exercising these and other constitutionally protected rights.
2. All students are responsible for conducting themselves in a manner that helps enhance an environment of learning in which the rights, dignity, worth, and freedom of each member of the academic community are respected.
3. Violations of University policies, rules or regulations, or federal, state, or local law may result in a violation of this Code and imposition of Conduct Procedures.

The following conduct, or an attempt to engage in the following conduct, is subject to conduct action: *[Note: Letters r and u have been intentionally omitted for continuity in record-keeping.]*

- a. Engaging in the following activities:

1. Inflicting physical injury upon a person;
2. Placing a person in fear of or at risk of imminent physical injury or danger or engaging in retaliatory threats against a person;
3. Inflicting severe mental or emotional distress upon a person through a course of conduct involving repeated harassment, intimidation, abuse, or disparagement;
4. Engaging in "fighting words" harassment, as that term is defined in [University Policy 503, Fighting Words Harassment](#);
5. Engaging in Relationship Violence; including:
  - i. Dating Violence, or
  - ii. Domestic Violence
6. Stalking another person.

With regard to this Chapter 5, Paragraph (a), the following additional regulations (see The University of North Carolina Board of Governors' Policy [700.4.2](#)) apply:

- A. No Student shall threaten, coerce, harass or intimidate another person or identifiable group of persons, in a manner that is unlawful or in violation of a constitutionally valid University policy, while on University premises or at University-sponsored activities based upon the person's actual or perceived race; color; religion; age; national origin; ethnicity; gender, gender identity or expression; sexual orientation; disability; or veteran status.
- B. No Student shall engage in unlawful harassment leading to a hostile environment. Unlawful harassment includes conduct that creates a hostile environment by meeting the following criteria: It is:
  1. directed toward a particular person or persons;
  2. based upon the person's actual or perceived race; color; religion; age; national origin; ethnicity; gender, gender identity or expression; sexual orientation; disability; or veteran status.
  3. unwelcome;
  4. severe or pervasive;
  5. objectively offensive; and
  6. so unreasonably interferes with the target person's employment, academic pursuits, or participation in University-sponsored activities as to

effectively deny equal access to the University's resources and opportunities.

- C. In determining whether Student conduct violates these provisions, all relevant facts and circumstances shall be considered. Care must be exercised in order to preserve freedoms of speech and expression, as articulated in current legal standards. Advice should be sought from the Office of Legal Affairs, as appropriate.
- b. Using, possessing, or storing any Weapon, dangerous chemical, fireworks or explosive without University authorization, except as explicitly permitted by law and University Policy 702, Weapons on Campus.
  - c. Initiating or causing to be initiated any false report, warning or threat of fire, explosion, or other emergency.
  - d. Interfering with normal University activities including, but not limited to, teaching, studying, research, the expression of ideas, University administration, speeches and other public or private events, and fire, police or other emergency services. Acts prohibited by this rule include, but are not limited to, those acts prohibited in University Policy 601.13, Interference with University Operations, which prohibits Student action taken "with intent to obstruct or disrupt any normal operation or function of the University," and University Policy 802, Conduct at Speech Events, which prohibits certain disruptive activities at speech events on campus.
  - e. Knowingly violating the terms of any sanction imposed in accordance with this Code.
  - f. Engaging in the following activities:
    - 1. Possessing, consuming, or using any controlled substance under the North Carolina Controlled Substances Act (NCGS Chapter 90, Article 5).
    - 2. Possessing or using drug paraphernalia.
    - 3. Manufacturing (including growing marijuana), distributing, delivering, or taking delivery of any controlled substance.
    - 4. Possessing with intent to manufacture (including growing marijuana), distribute, or deliver any controlled substance.
    - 5. Huffing or sniffing any substance not intended for such use.

Standard sanctions and certain other requirements apply where controlled substance offenses are at

issue, pursuant to University Policy 711, Program to Prevent Use of Illegal Drugs and Alcohol Abuse.

- g. Setting fires, or misusing or damaging fire safety equipment or elevators.
- h. Engaging in the following activities:
  - 1. Furnishing false information to the University.
  - 2. Failing to report to the Dean of Students Office any criminal felony convictions that are entered against one (a) between application for admission to the University and acceptance of admission or (b) at any time between acceptance of admission and the granting of a degree or other termination of association with the University (see Chapter 4, Section I).
  - 3. Misrepresenting or concealing one's organizational affiliation(s) or sponsorship(s) for the purpose of enticing another person into joining or participating in a Group or Organization.
  - 4. Misrepresenting to a third party one's affiliation with the University.
- i. Engaging in the following activities:
  - 1. Forgery, unauthorized alteration, or unauthorized use or misuse of any document or instrument of identification (ID).
  - 2. Displaying or using an ID that is not one's own or is fictitious, canceled, revoked, suspended, or altered.
  - 3. Counterfeiting, loaning, or selling an ID to another person not entitled thereto.
- j. Any unauthorized use of electronic or other devices to make an audio, photographic, or video record of any person while on University premises without his/her knowledge or without his/her effective consent when such a recording is likely to cause injury, embarrassment, or distress. This includes, but is not limited to, secretly taking audio, video, or photographs of another person in a gym, locker room, restroom, or residence hall room.
- k. Engaging in the following activities:
  - 1. Theft or attempted theft of University or individual property or services.
  - 2. Breaking and entering into University property or the property of others (including, but not limited, to private vehicles).
  - 3. The unauthorized use or access to private or confidential information in any medium.
  - 4. Possessing property that is not your own without owner authorization.

- l. Destroying, defacing, tampering with, or damaging the property of others or University property, including, but not limited to, chalking, spray painting, or otherwise marking without appropriate University approval.
- m. Failing to comply with the reasonable directions of or meeting requests by University officials, including, but not limited to, Dean of Students staff, Police and Public Safety officers, or Housing and Residence Life Staff, acting in performance of their duties.
- n. Violating, aiding in violation of, or concealing evidence of violation of published University policies or regulations. Such policies or regulations include, but are not limited to, all Housing and Residence Life policies, the residence hall contract, and the Resident Handbook (collectively referred to as "Residence Life Policies").
- o. Possessing, consuming, or distributing alcoholic beverages illegally and/or without University authorization, including but not limited, to:
  1. Possessing or consuming alcoholic beverages by Students less than twenty-one years of age;
  2. Operating a motor vehicle under the influence alcohol or while impaired by the consumption of alcohol;
  3. Furnishing or selling any alcoholic beverages to any person less than twenty-one (21) years of age;
  4. Public intoxication;
  5. Failing to abide by the provisions of an "Acknowledgment of Responsibility for Service of Alcoholic Beverages" form;
  6. Making any sale of any alcoholic beverage on the University campus; or
  7. Violation of University Policy 706, Alcoholic Beverages.
- p. Engaging in Sexual Misconduct, including:
  1. Committing Sexual Acts without Consent
  2. Committing Sexual Contact without Consent
  3. Committing Sexual Exhibitionism without Consent
  4. Committing Sexual Exploitation; or
  5. Committing Sexual Harassment

(See Chapter 8, Sexual Misconduct, Relationship Violence, and Stalking Complaint Procedures)
- q. Trespassing, including being present in or using, or aiding and abetting another in being present in or using, University premises, facilities, or property without University authorization.
- r. *[Intentionally omitted for continuity in record-keeping]*
- s. Engaging in the following activities:
  1. Engaging in disorderly conduct, such as fighting, threatening behavior, public disturbance, or drunk and disorderly conduct.
  2. Engaging in conduct, such as loud, aggressive, or combative behavior, that disrupts or interferes with the normal functions of a class, including, but not limited to, failure to conform to the instructor's announced expectations for classroom decorum. Disruptive conduct also includes use of cell phones or other electronic devices for voice or text communication in class, unless permitted by the instructor. (A Student who persists in disruptive conduct as described of this Code is subject to Interim Suspension set forth in Chapter 10, Section III of this Code.)
- t. Engaging in hazing, as defined by University Policy 405, Hazing.
- u. *[Intentionally omitted for continuity in record-keeping.]*
- v. Engaging in computer abuse, including, but not limited to, violation of:
  1. University Policy 302, Web Communications;
  2. University Policy 303, Network Security;
  3. University Policy 304, Electronic Communication Systems;
  4. University Policy 307, Responsible Use of University Computing and Electronic Communication Resources;
  5. University Policy 601.14, Proprietary Software; or
  6. University Policy 311, Data and Information Access and Security and its related University Policies 311.1 through 311.9.
- w. Gambling for money or other things of value, except as permitted by law. Prohibited gambling includes, but is not limited to, betting on, wagering on, or selling pools on any athletic or other competitive event; possessing any card, book, or other device (including that which uses the Internet) for registering bets; or bookmaking in connection with betting.
- x. Presence during any conduct prohibited by this Code that condones, supports, or encourages such prohibited conduct. Students who are present during a violation of this Code are expected to remove themselves from the situation and are

encouraged to report the violation to a University official.

- y. Commission of an act, or an attempt to commit an act, that violates state or federal law or local ordinances that is not otherwise a violation of this Code. Such acts will be adjudicated as if they are violations of this Code. The University reserves the right to proceed with a hearing and the possible imposition of a sanction under this Code prior to, concurrent with, or subsequent to, civil litigation, criminal arrest, and/or criminal prosecution as set forth in Chapter 4, Section III of this Code.

A full explanation of prohibited conduct, and a description of procedures used in cases where violations are alleged, is found in the complete text of The Code of Student Responsibility. **This Code may be modified from time to time. Students are advised to contact the Dean of Students Office or go to [legal.uncc.edu/policies/up-406](http://legal.uncc.edu/policies/up-406) to ensure they consult the most recent edition.**

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# The Program to Prevent Use of Illegal Drugs and Alcohol Abuse

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<http://legal.uncc.edu/policies/up-711>

*Below is a brief summary of University Policy 711, Program to Prevent Use of Illegal Drugs and Alcohol Abuse. Visit [legal.uncc.edu/policies/up-711](http://legal.uncc.edu/policies/up-711) for a full version of that policy.*

In keeping with efforts to maintain an environment that supports and encourages the pursuit and dissemination of knowledge, it is the policy of The University of North Carolina at Charlotte to consider the use of illegal drugs or alcohol abuse by students, faculty and staff or by others on premises under University control to be unacceptable conduct that adversely affects the educational environment.

To remind students, faculty, and staff of their responsibilities for maintaining a drug-free environment, this Policy will be distributed throughout the University community each year. Further, the University considers a sound awareness, education, and training program indispensable in combating illegal use of drugs and alcohol abuse, both as a preventive measure and as a remedy. The scope of the University program addresses the awareness needs of students, faculty, administrators, and other staff members and includes the following minimum components.

- The health hazards associated with the use of illegal drugs and alcohol abuse.
- The incompatibility of the use of illegal drugs or abuse of alcohol with maximum achievement of personal, social, and educational goals.
- The potential legal consequences (including both criminal law and University discipline) of illegal drug abuse and alcohol abuse.
- The effective use of available campus and community resources in dealing with illegal drug use and alcohol abuse problems.

The University's program emphasizes collaboration with local resources such as the Substance Abuse Prevention Services of the Carolinas, Chemical Dependency Center of Charlotte-Mecklenburg, Mecklenburg County Substance Abuse Services, McLeod Center, Alcoholics Anonymous, Narcotics Anonymous, Al-Anon, Nar-Anon, etc. To this end, the

University shall participate in the Charlotte-Mecklenburg Drug-Free Coalition and will work with local advisory boards to further collaborate between the University and the Charlotte Community.

The University's awareness, education, and training efforts stress prevention. The goal of these efforts is (1) to encourage non-users of illegal drugs and alcohol to continue to be non-users, (2) to encourage users of alcohol to do so safely and responsibly, and (3) to encourage users of illegal drugs to stop such use.

The use of illegal drugs and the abuse of alcohol are considered by the University to be problems that can be overcome. Therefore, the educational and rehabilitative services cited above are available on a confidential basis. However, the possession, sale, delivery, or manufacture of illegal drugs will not be tolerated on campus or off campus in the event that the interests of the University may be affected.

The University will cooperate fully with law enforcement agencies and will apply appropriate disciplinary procedures should a student, faculty member, or staff member violate criminal statutes with regard to illegal drugs. Violations may subject a student, faculty member, or staff member to prosecution and punishment by civil authorities **and** to disciplinary action by the University. It does not constitute "double jeopardy" for the University to initiate its own disciplinary proceedings for the same offense when the alleged conduct is deemed to affect the interests of the University.

Under federal law, employees convicted of any criminal drug offense occurring in the workplace are required to notify the University by informing the appropriate Vice Chancellor's office no later than five (5) days after such conviction. Disciplinary action and/or participation in a drug rehabilitation/education program as a result of University disciplinary proceedings must commence within 30 days of notice of conviction.

Upon receiving notice of a violation of this Policy, the University will initiate disciplinary procedures applicable to one's status as a member of the University community.

**The use of illegal drugs may result in a variety of sanctions, from written warnings with probationary status to expulsion from enrollment or discharge from employment.**

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# Smoking on University Property

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<http://legal.uncc.edu/policies/up-707>

*Below is a brief summary of University Policy 707, Smoking on University Property. Visit [legal.uncc.edu/policies/up-707](http://legal.uncc.edu/policies/up-707) for a full version of that policy.*

The University of North Carolina at Charlotte has a vital interest in maintaining a healthy and safe environment for its students, faculty, staff and visitors while respecting individual choice about smoking. Consistent with these concerns and with North Carolina law, the following Policy establishes restrictions on smoking on University Property and provides procedures for accommodating the preferences of both smokers and nonsmokers.

For the purposes of this Policy:

- A. "Smoking" is defined as the use or possession of a lighted cigarette, lighted cigar, lighted pipe, or any other lighted tobacco product, or the use of an electronic inhaler that employs a mechanical heating element, battery, or electronic circuit to heat a liquid nicotine solution contained in a vapor cartridge, such as an electronic cigarette, electronic cigar, electronic cigarillo, or an electronic pipe.
- B. A "Building" is defined as any permanent or temporary structure utilized for the support, shelter or enclosure of people, animals, or property. "Buildings" include, but are not limited to: residence halls, classroom and office buildings, workshops, gymnasiums, shuttle stops, athletic fields, parking decks, stairwells, inside and outside dining areas, vending areas, breezeways, and connectors.
- C. A "University Building" is defined as any Building owned, leased as lessor, or the area leased as lessee and occupied by UNC Charlotte.
- D. "University Property" means University Buildings and grounds owned, leased, operated, controlled, or supervised by UNC Charlotte.
- E. A "University Vehicle" is defined as a vehicle owned or leased by UNC Charlotte.
- F. A "Designated Smoking Area" is defined as an exterior area on the UNC Charlotte campus designated by the Chancellor or the Chancellor's designee as a place for smoking. Designated

Smoking Areas will be marked by proper signage, and are subject to the provisions in Section III of this Policy.

The following restrictions apply to smoking on University Property:

- A. Smoking is prohibited within all University Buildings.
- B. Smoking is prohibited within 100 linear feet of any University Building unless otherwise allowed under subsection III. D.
- C. Smoking in University Vehicles is prohibited.
- D. Smoking is permitted on University Property in Designated Smoking Areas.

Additional smoking restrictions required for safety reasons may be imposed by the University on a case-by-case basis. Areas with such restrictions will be identified by signage.

Violation of this Policy may subject a member of the campus community to disciplinary action appropriate to his or her status as faculty, staff, or student.

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# Noble Niner Code

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<http://studentaffairs.uncc.edu/niner-code>

The Noble Niner Code was authored by the Student Government Association and describes the ideals which every Charlotte 49er student can ideally reach as he or she becomes a fully actualized individual.

It was approved by the UNC Charlotte Board of Trustees on April 20, 2007, and is now adopted as an official document of the University.

## Scholarship

*A Niner shall strive for academic excellence in and out of the classroom while maintaining academic honesty and ethical values.*

## Integrity

*A Niner shall act to uphold and improve one's self, the community, and the high standards of the institution.*

## Respect

*A Niner shall welcome all aspects of individuality and self-worth while embracing the learning opportunities that diversity provides.*

## Accountability

*A Niner shall hold others responsible for their actions while accepting responsibility for one's own.*

## Dignity

*A Niner shall appreciate the intrinsic value of the institution and work to preserve the 49er environment.*

## Honor

*A Niner shall appreciate students, faculty, administration, and staff as contributing members of the University community.*

## Compassion

*A Niner shall demonstrate genuine consideration and concern for the needs, feelings, ideas, and well-being of others.*

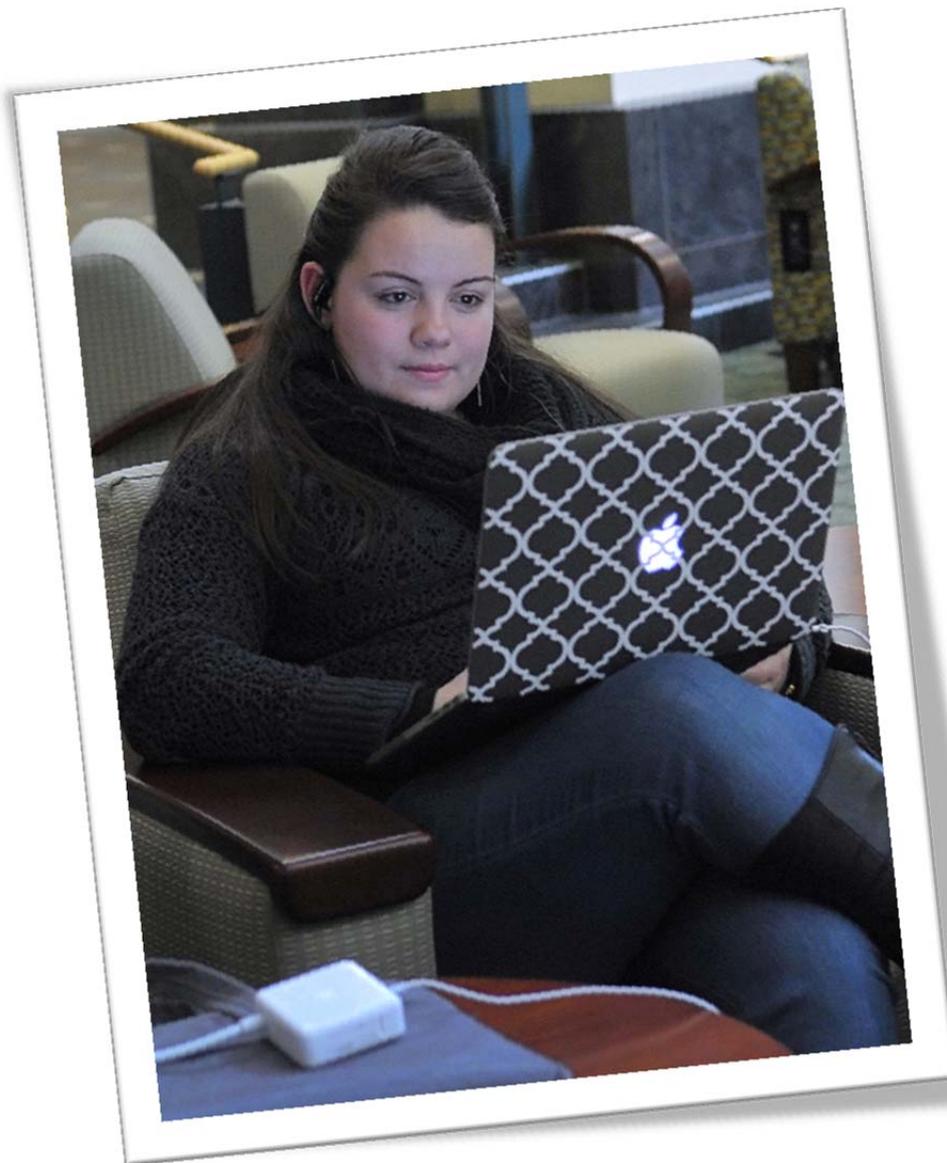
## Character

*A Niner shall exemplify all qualities and traits that promote fellowship and camaraderie among the student body, faculty, staff, and administration.*

## Nobility

*A Niner shall exhibit the virtues and values listed above which befit all members of our Niner Nation.*

# *Degree Requirements* and Academic Policies



# Degree Requirements and Academic Policies

*Each student is responsible for the proper completion of his or her academic program, for familiarity with the Catalog, for maintaining the grade point average required, and for meeting all other degree requirements. Students assume academic and financial responsibility for the courses in which they enroll and are relieved of these responsibilities only by formally terminating enrollment.*

## Academic Advising

<http://advising.uncc.edu>

Each student at UNC Charlotte is assigned an academic advisor or advisory committee in the student's major field of study. Students who have declared a major, or pre-major, should seek advising from their advisor in their College's advising center or department. Students who have more than one major

should seek advice from each of their assigned advisors in each academic department. Students who have not chosen or been admitted to a major or pre-major program are enrolled as students of University College (UCOL) and are assigned an advisor from the

University Advising Center. The University Advising Center also provides services to students who are transitioning from one major to another. A student may learn how to find his/her assigned advisor by visiting: [advising.uncc.edu](http://advising.uncc.edu).

In helping students achieve their educational and career goals, advisors will focus on enhancing the students' transition from high school or another college/university, will offer assistance in understanding University policies and procedures, and refer students to campus services that will best ensure the students' success both on campus and in meeting their career goals. The advisors will also facilitate the development of decision-making skills critical to success in college and life. Each student's assigned advisor will communicate regularly with the student throughout the year about important dates, programs, and services that will help ensure success at UNC Charlotte. Students are encouraged to maintain contact with appropriate advisors throughout their enrollment period.

The advisor assists the student to develop a plan of study based on the student's prior preparation and objectives. The academic advisor will counsel, but the final responsibility remains that of the student.

## Baccalaureate Degree Requirements

### Credit Hours and Major

All baccalaureate degrees require completion of a minimum of 120 semester hours of credit, including all requirements for a major field of study. Specific requirements for degrees and programs are presented under the college and departmental sections of this *Catalog*.

### General Education

All baccalaureate degrees require completion of a common set of General Education requirements. Refer to the General Education Program section of this *Catalog*.

### Residence Requirement

To graduate, a student must earn the last 25% of baccalaureate degree requirements at UNC Charlotte, including the last 12 semester hours of work in the major field and at least six hours of any minor field of study. Exceptions to these hour provisions may be made upon the recommendation of the student's major department and with the approval of the dean of the college of the student's major. (Please note: earning 25% of the degree at UNC Charlotte cannot be waived due to Southern Association of Colleges and Schools accreditation standards.)

Coursework taken in residence shall be construed to mean work offered by UNC Charlotte and taken in courses on the UNC Charlotte campus or at an approved off-campus center. Credit earned by

challenge examinations or other advanced standing examinations cannot be used to meet the residency requirement.

## Grade Point Averages

To graduate, a student must have an overall cumulative grade point average of at least 2.0 and a grade point average of at least 2.0 in the major and in any minor. Some programs require a higher grade point average. Specific requirements for degrees and programs are presented under the college and departmental sections of this *Catalog*.

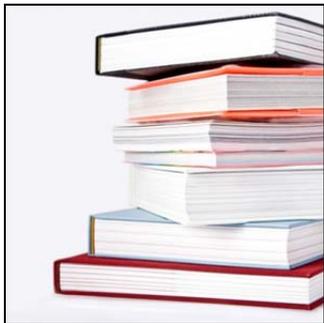
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# General Education

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<http://gened.uncc.edu>

The General Education Program is central to UNC Charlotte's basic mission of providing all of its undergraduates with a liberal arts education. The Program approaches the liberal arts in its traditional meaning of learning the arts appropriate for living the educated, responsible life of a free (*liberālis*) citizen. It provides all undergraduate students, regardless of their majors, with the foundations of the liberal education they will need to be informed people who have the ability to act thoughtfully in society, the ability to make critical judgments, and the ability to enjoy a life dedicated to learning and the pleasures of intellectual and artistic pursuits.



The Program is designed to address four areas of liberal education. First, it helps students develop the foundational skills necessary for obtaining the full benefits of a college education: basic college-level writing, basic use of information technology, and basic college-level mathematical and logical skills. Second, it helps provide students with an understanding of the methods of scientific inquiry and the ways that knowledge is acquired and accredited in the life sciences, physical sciences, and social sciences. Third, the General Education Program addresses major themes related to living as a liberally educated person in the twenty-first century. Students take four Liberal Studies courses designed especially for the General Education Program. These courses are organized around major themes of liberal education: the arts and

society, the Western cultural tradition, global understanding, and ethical and cultural critique. Fourth, it helps students develop more specialized skills for disciplinary writing and oral presentations. Students should seek advice concerning completion of their General Education requirements from an advisor in their department or college.

The General Education Program is administered by University College but individual courses are taught by faculty from all of the colleges. Thus, requests for exceptions to any aspects of the General Education requirements for individual students must be approved by the Dean of University College, but matters relating to the course itself need to be addressed by the department and college offering the course. Some transfer students may be exempt from the General Education Requirements; see the "Transfer Credit and Advanced Academic Standing" heading later in this section for details.

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## I. Development of Fundamental Skills of Inquiry (9-12 hours)

### First-Year Writing Courses

Students take two courses, UWRT 1101 and UWRT 1102. Entering freshmen who qualify for the accelerated course in writing and rhetoric may meet this requirement by completing one course, UWRT 1103. After completing these courses students are expected to be able to write clearly and concisely in standard English and to be generally prepared to do college-level writing and editing.

UWRT 1101 Writing and Inquiry in Academic Contexts I (3)  
and UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

or

UWRT 1103 Writing and Inquiry in Academic Contexts I and II (3)

### Mathematical and Logical Reasoning

One three-credit course in mathematics and a second three-credit course selected from mathematics, statistics, or deductive logic are required.

MATH 1XXX Math Elective (3)

Plus one of the following:

MATH 1XXX Math Elective (3)

STAT 1XXX Statistics Elective (3)

PHIL 2105 Deductive Logic (3)

Most undergraduates at UNC Charlotte major in programs that require mathematics or statistics as related work. For these students, the related

mathematics requirements determine the courses taken to meet the General Education requirement. Students in majors that do not require related work in mathematics normally take MATH 1100, followed by either MATH 1102 or PHIL 2105.

### **Basic Skills of Information Technology**

Incoming students are expected to have already developed the basic computer skills necessary to use word processing software, email, and the internet. By the end of their first semester at UNC Charlotte, students are expected to have developed the basic skills necessary to find and evaluate information from the internet and bibliographic and database sources in Atkins Library. These skills are developed in UWRT 1101 and UWRT 1103, and help with bibliographical and database search skills is available in the information commons of the Library. Basic tutorial help is also available at campus computer labs. Students are expected to exhibit ethical behavior in the use of computers. More advanced information literacy and technology skills are required by individual departments and majors.

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## **II. Inquiry in the Sciences (10 hours)**

### **Two Courses in the Natural Sciences, At Least One of Which Must Be Taken With a Laboratory**

These courses introduce students to the methods of various science disciplines. They provide an understanding of the current scientific knowledge of the world, how that knowledge is secured, and how scientific knowledge changes over time. Selected from:

Astronomy (PHYS 1130)  
Bioinformatics (BINF 1101)  
Biological Anthropology (ANTH 2141)  
Biology (BIOL 1110, BIOL 1115)  
Chemistry (CHEM 1111, CHEM 1112, CHEM 1200, CHEM 1203, CHEM 1204, CHEM 1251, CHEM 1252)  
Earth Sciences (ESCI 1101)  
eScience (ITIS 1350)  
Geography (GEOG 1103)  
Geology (GEOL 1200, GEOL 1210)  
Physics (PHYS 1100, PHYS 1101, PHYS 1102, PHYS 1201, PHYS 1202, PHYS 1203, PHYS 2101, PHYS 2102)  
Psychology (PSYC 1101)

### **One Course in the Social Sciences**

These courses introduce students to the methods of the social sciences and to the applications of these methods for gaining a scientific understanding of the social world. Selected from:

Anthropology (ANTH 1101)  
Economics (ECON 1101, ECON 2101, ECON 2102)  
Geography (GEOG 1105)  
Political Science (POLS 1110)  
Sociology (SOCY 1101)

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## **III. Themes of Liberal Education for Private and Public Life (12 hours)**

The UNC Charlotte faculty has selected four themes of a liberal arts education around which to offer a core of Liberal Studies (LBST) courses dedicated exclusively to General Education. All of these courses include the consideration of gender, race, and ethnic diversity, as appropriate for understanding the individual themes of these courses. Despite the fact that topics vary, and courses are offered from various departments, LBST courses may not be repeated for credit.

Each student must take one course from each area as follows:

### **One Course in the Arts and Society**

Art is indispensable to the structure and fabric of all societies, and each course examines this fundamental connection from the perspective of a specific art form. Selected from:

LBST 1101 The Arts and Society: Dance (3)  
LBST 1102 The Arts and Society: Film (3)  
LBST 1103 The Arts and Society: Music (3)  
LBST 1104 The Arts and Society: Theater (3)  
LBST 1105 The Arts and Society: Visual Arts (3)

### **One Course in the Western Tradition**

Each section of this course examines a major aspect of Western culture through the process of analyzing the present in terms of the past.

LBST 2101 Western Cultural and Historical Awareness (3)

### **One Course in Global Understanding**

All liberally educated people need to have the ability to understand the world from the point of view of more than one culture and be able to analyze issues from a global perspective.

LBST 2102 Global and Intercultural Connections (3)

### **One Course Dealing with Ethical Issues and Cultural Critique**

Each of these courses deals with an important contemporary issue, and each one gives significant

attention to ethical analysis and cultural critique in the liberal arts. Selected from:

- LBST 2211 Ethical Issues in Personal, Professional, and Public Life (3)
- LBST 2212 Literature and Culture (3)
- LBST 2213 Science, Technology, and Society (3)
- LBST 2214 Issues of Health and Quality of Life (3)
- LBST 2215 Citizenship (3)

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## IV. Communication Skills (6-9 Hours)

### Writing in the Disciplines (W)

Six semester hours, including at least three semester hours in the major. These courses are spread throughout the curriculum and are indicated with a (W) after the course title. These courses assume that students have already developed the basic grammatical and compositional skills needed to write college-level English, and they build on these skills to develop writing strategies appropriate to the discipline of the department offering the course.

### Oral Communication (O)

At least one course designated as an oral communication course. These courses are spread throughout the curriculum and are indicated with an (O) after the course title. If a course is designated as both a writing in the discipline course (W) and an oral communication course (O), a student may apply that course to both requirements.

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# Declaring Majors and Minors

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## Declaration of a Major(s)

Students must complete the requirements for an academic major in order to graduate from the University. Students must, therefore, enroll in a program leading to a baccalaureate degree, and, in some cases, they may choose an area of academic concentration within that degree. In order to be admitted to a degree program a student must meet all requirements for acceptance into that major and submit an approved "Change of Major/Minor" form through the relevant department to the Office of the Registrar. Students may declare multiple majors presuming they meet the requirements for each degree. Students pursuing multiple majors are encouraged to meet with advisors in each department to ensure they are fulfilling degree requirements.

The choice of a major appropriate for a student's interests, aptitudes, and career goals is a crucial decision during a student's academic career. Undergraduate students may declare a major field of study or pre-professional program upon their enrollment at UNC Charlotte as freshmen or transfer students, or they may enroll in the University as undeclared students in University College. Undeclared students should work closely with their advisor in the University Advising Center to identify and prepare for their chosen field of study, and for that reason, advising is required for all undeclared (UCOL) students each semester. All students should declare and be accepted into a major or a pre-professional program by the time they have earned 60 semester hours of credit; transfer students entering with more than 60 credit hours should make that declaration upon enrollment or during their first semester of attendance. A delay in selecting a major and/or multiple changes of major often prevents graduation in a timely fashion.

## Declaration of a Minor(s)

Students who are working on a bachelor's degree at UNC Charlotte have the option to enroll in a program leading to a minor (or minors) provided: (1) the minor field is different from the major field; (2) the student meets the requirements for acceptance into the minor program; and (3) the appropriate application for admission or the "Change of Major/Minor" form is approved and filed at the Office of the Registrar.

## Change of Degree or Major Program

An undergraduate student may change the degree program, major, area of academic concentration, or minor in which he/she is enrolled and may enroll in a new program of study provided that space is available and that he/she meets the prerequisites for admission to the new program. Any change of program requires written approval via a "Change of Major/Minor" form to be filed at the Office of the Registrar. As noted above, changes in major, particularly those made after a student has earned 60 credit hours, may delay graduation.

## Second Baccalaureate Degree or Major

Students who have earned bachelor's degrees from UNC Charlotte or other accredited institutions may apply to a program leading to a second baccalaureate degree or major provided the major field selected is different from that of the first degree or the degree sought is different from the first granted by UNC Charlotte. In addition, the appropriate application for admission must be filed and approved.

Students seeking a second baccalaureate degree or major must: (1) satisfy residency requirement (refer to Residence section of Baccalaureate Degree Requirements) if their first degree was not earned at UNC Charlotte; (2) achieve a minimum grade point average of 2.0 on all work attempted toward the second degree or major; and (3) satisfy all department and college requirements for the degree or major sought. Students who hold a baccalaureate degree from an accredited institution will not be required to satisfy the UNC Charlotte General Education Requirements for a second degree. Students will be issued a transfer credit report and will have their credit from their first degree evaluated. Students who are completing a second baccalaureate degree or major within the same degree (e.g., B.A., B.S.) are not awarded another diploma provided the first degree was earned at UNC Charlotte.

### Baccalaureate Minor

Students who have earned a bachelor's degree from UNC Charlotte may enroll in a program of study leading to a minor provided: (1) the minor field selected is different from any prior major or minor; (2) the student meets the requirements for acceptance into the minor program; and (3) the appropriate application for admission or a "Change of Major/Minor" form is approved and filed at the Office of the Registrar. Students who are completing a baccalaureate minor at UNC Charlotte are not awarded another diploma.

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## Academic Credit

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### Credits/Semester Hours

The unit of measurement of University work is the credit hour, also referred to as a semester hour. It ordinarily represents one lecture hour per week for one semester; however, this may vary for courses, such as laboratories. A bachelor's degree requires a minimum of 120 hours.

### Course Load

A course load of 15-18 hours constitutes a normal full semester load for undergraduates. A student must complete 15-16 hours per semester to complete a bachelor's degree in four academic years. Enrollment in more than 18 hours in a semester requires advance approval of the dean of the student's major college. An undergraduate student enrolled in 12 or more hours is considered to be a full-time student and must pay full tuition and fees.

A standard load for an undergraduate student enrolled in a summer session is up to 7 credit hours. Enrollment in more than 7 credit hours in a single

summer session, or in concurrent summer sessions (e.g., a 10-week and a 5-week session), requires advance approval of the dean of the student's major college.

The appropriate course load for an undergraduate student is dependent on two factors: scholastic ability as reflected by the student's academic history and available study time. Successful academic achievement usually requires at least two hours of study per week outside of class for each credit hour in which the student is enrolled. For example, enrollment in 16 credit hours would require minimally 32 hours of outside preparation per week.

### Student Classification

At the beginning of each semester, students working toward a bachelor's degree are classified on the basis of earned semester hours (also referred to as credit hours):

Classification	Earned Semester Hours
Freshman	0-29
Sophomore	30-59
Junior	60-89
Senior	90 or more

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## Registration

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<http://registrar.uncc.edu>

The Office of the Registrar is responsible for the management of the registration process by which students enroll in, drop, and withdraw from courses. Through the registration process, students assume academic and financial responsibility for the courses in which they enroll. They are relieved of these responsibilities only by formally terminating enrollment by dropping or withdrawing in accordance with deadlines specified in the Academic Calendar and the corresponding prorated refund schedule available on the Student Accounts website at [finance.uncc.edu/student-accounts/refunds](http://finance.uncc.edu/student-accounts/refunds).

### Registration Appointment Times

Assignments are made according to student classification and cumulative hours earned for undergraduate students and can be viewed online at [registrar.uncc.edu/students/registration-information](http://registrar.uncc.edu/students/registration-information).

### Registration Deadlines

University policies determine when students may enroll or adjust their enrollment in courses. General deadlines are shown below and specific deadlines for a given term are available online at: [registrar.uncc.edu/calendar](http://registrar.uncc.edu/calendar).

## Add/Drop Period

The Add/Drop period runs through the eighth instructional day of the Fall and Spring semesters (the second instructional day for the first and second Summer sessions).

During the Add/Drop Period, students can:

- Register for courses.
- Drop a course(s) without record (and remain enrolled in other courses).
- Drop all courses without record.
- Change the grade type to Audit or Pass/No Credit (refer to Auditing a Course and Pass/No Credit Option sections).
- Elect to retake a course with Grade Replacement (refer to Repeating Courses section).

After the Add/Drop Period students can withdraw from one or more courses in accordance with the Withdrawals policy.

## Prerequisites and Permits

All students, including visitors and non-degree students, are required to meet course prerequisites and to obtain the required permissions to enroll in courses through the department which sponsors the course.

## Auditing a Course

With the permission of the instructor, a student may audit any course in which space is available. Fees and procedures for this non-credit enrollment are the same as those for a credit enrollment. The procedure for adding, dropping, or withdrawing from an audit course is the same as for credit enrollments. No student will be allowed to change the designation of a course from audit to credit or from credit to audit after the eighth instructional day of a semester (or a proportional period for Summer sessions). Participation of auditors in course discussions and in tests or examinations is optional with the instructor. Students who audit receive no University credit, but they are expected to attend the course regularly.

## Dual Undergraduate and Graduate Registration

Undergraduate students at UNC Charlotte who are required to take fewer than 12 semester hours of undergraduate work to fulfill all requirements for the bachelor's degree may be allowed during their final semester to enroll in certain courses for the purpose of obtaining graduate credit. Authorization for dual undergraduate/graduate registration may be obtained by submitting to the Dean of the Graduate School a

“Special Request” form approved by the student's undergraduate academic advisor, the instructor(s) of the graduate course(s), and the dean(s) of the college(s) offering the graduate course(s), accompanied by the regular application for admission to graduate study and supporting credentials. The total hours to be carried in this status shall not exceed 12 hours, of which no more than nine may be for graduate credit. On the basis of work attempted prior to the final semester, such students must meet the grade point criteria for admission to a graduate degree program at the University. No course for which credit is applied to an undergraduate degree may receive graduate credit. Permission to take graduate courses under dual registration does not constitute admission to any graduate degree program at the University.

## Consortium Registration

The Charlotte Area Educational Consortium offers an inter-institutional exchange during the fall and spring semesters for *full-time undergraduate degree-seeking* students. UNC Charlotte students may take courses *not available at UNC Charlotte* at one of the institutions listed below, have them appear on their transcript, and be computed in their grade point average at this University. The registration process is initiated in the Office of the Registrar and requires the approval of the student's college dean.

- Belmont Abbey College
- Cabarrus College of Health Science
- Carolinas College of Health Sciences
- Catawba College
- Catawba Valley Community College
- Central Piedmont Community College
- Cleveland Community College
- Davidson College
- Gardner-Webb University
- Gaston College
- Gordon-Conwell Theological Seminary
- Johnson C. Smith University
- Lenoir-Rhyne College
- Livingstone College
- Mitchell Community College
- Pfeiffer University
- Queens University of Charlotte
- South Piedmont Community College
- Stanly Community College
- University of South Carolina at Lancaster
- Wingate University
- Winthrop University
- York Technical College

## Inter-Institutional Registration

An inter-institutional registration program is available, for a limited number of undergraduate and graduate

students, with the University of North Carolina at Greensboro, North Carolina State University, University of North Carolina at Chapel Hill, Duke University, and North Carolina Central University. The registration process is initiated in the Office of the Registrar and requires the approval of the student's college dean.

## NC Online

The University of North Carolina Online offers comprehensive descriptions of and contact, application, admission, and tuition and fee information for more than 170 online programs in 22 fields of study offered by the 16 constituent universities of one of the world's most prestigious university systems. For details, visit: [online.northcarolina.edu](http://online.northcarolina.edu).

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# Termination of Enrollment

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## Termination by the Student

Prior to the end of the Add/Drop Period, students may terminate enrollment in one or more courses by dropping them in accordance with the Registration policy. After the end of the Add/Drop Period, students may terminate enrollment in one or more courses by withdrawing from them in accordance with the below Withdrawals policy.

## Withdrawal Policy

Students are expected to complete all courses for which they are registered at the close of the Add/Drop Period. These courses will appear on the transcript, count as attempted hours, and except for withdrawals allowed under this policy, receive grades used in the GPA calculation. Undergraduate students may receive a grade of W for no more than 16 credit hours over their academic careers. Students who withdraw under approved extenuating circumstances will receive "WE" grades that do not count against this 16-hour limit. Both types of withdrawal are subject to all financial aid and satisfactory academic progress rules.

## Extenuating Circumstances

Students who experience serious extenuating circumstances (personal or medical crisis or military deployment) may petition for a withdrawal that does not count against their career W limit. Procedural details and advice should be obtained from the Dean of Students Office. The Dean of Students is responsible for developing and communicating standards and procedures in conjunction with the Colleges that govern these decisions. The student is expected to submit the petition during the term the crisis begins. If

approved, a grade of WE will be recorded for each course—the "E" is an annotation for "extenuating circumstances." Courses marked WE do not count in GPA or tuition surcharge calculations. Appeals of negative decisions are handled by the Office of the Provost. If denied, the student might still be able to withdraw under the policy for withdrawal without extenuating circumstances, described below.

## Non-Extenuating Circumstances

Every student is allowed a few opportunities to withdraw from any class for any reason (and receive a grade of W), subject to the following conditions:

### Deadline

The deadline to withdraw from one or more courses (including withdrawing from all courses) is 60% of the way through the term, which for fall or spring semesters is during the 9th week. The precise date for each term will be published in the academic calendar online at [registrar.uncc.edu/calendar](http://registrar.uncc.edu/calendar). After this deadline, withdrawal will only be allowed for approved extenuating circumstances.

### Grade of W

A grade of W will be recorded for each withdrawal without extenuating circumstances. Courses marked W do not count in GPA calculations but do count in tuition surcharge calculations.

### W-Limit Hours

Students are allowed to receive a grade of W for no more than 16 credit hours over their academic careers. Students may only withdraw from a course if they have enough remaining "W-limit hours," as shown in the following examples:

- A student has already received W grades for 14 credit hours and thus has only 2 W-limit hours left. The student may not withdraw from a 3-credit course, but could withdraw from a 1- or 2-credit course.
- Another student has 12 remaining W-limit hours and is currently taking five 3-credit courses. The student would like to withdraw from all courses but lacks approved extenuating circumstances, and thus must choose at least one course in which to stay enrolled.

Students who are unable to withdraw from a course but stop attending anyway must accept whatever grade the instructor assigns (most often an F) for their partial work.

## Termination by the University

The University maintains the right to terminate a student's enrollment in a course for a variety of reasons including, but not limited to: course schedule changes,

course cancellation due to low enrollment, or the student's nonfulfillment of course prerequisites. The University maintains the right to terminate a student's enrollment in all courses in a term for a variety of reasons including, but not limited to: academic suspension, suspension for violation of the Code of Student Responsibility, or suspension in violation of the Code of Student Academic Integrity. Students who have been suspended for academic or disciplinary reasons must apply for readmission as described in the Readmission of Former Students policy.

## Classroom Policies and Attendance

Each instructor determines the classroom policies (including attendance regulations) for his or her courses. In general, students are expected to attend punctually all scheduled sessions in the courses for which they are registered, to demonstrate civil behavior while in class, and to complete all of the course requirements, but instructors may outline additional and more specific standards in the course syllabus. Absences from class *may* be excused by the instructor for such reasons as personal illness, religious holidays, or participating as an authorized University representative in an out-of-town event. Whenever possible, students are expected to seek the permission of the instructor prior to absences.

## Grading and Related Policies

Instructors assign grades on the basis of their evaluation of the academic performance of each student enrolled in their courses. At the end of the term, the grades are reported to the Office of the Registrar which is responsible for maintaining student academic records and making grades available to students.

### Grades

Letters are used to designate the quality of student academic achievement.

UNDERGRADUATE GRADES		
Letter	Meaning	Grade Points Per Semester Hour
A	Excellent	4
B	Good	3
C	Fair	2
D	Passing	1
F	Failing	0
I	Incomplete	*
IP	In Progress	*
W	Withdrawal	*
WE	Withdrawal (Extenuating Circumstances)	*
H	Honors	*
AU	Auditing Class	*
NR	No recognition given for Auditing Class	*
<b>Cooperative Education</b>		
S	Satisfactory	*
U	Unsatisfactory	*
<b>Pass/No Credit Option</b>		
P	Passing	*
N	No Credit	*

*\*Not used in computation of grade point average*

### Grade of I (Incomplete)

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed by the deadline specified by the instructor, and no later than 12 months. If the I is not removed during the specified time, a grade of F, U, or N, as appropriate is automatically assigned. The grade of I cannot be removed by enrolling again in the same course, and students should not re-enroll in a course in which they have been assigned the grade of I.

### Grade of IP (In Progress)

The grade of IP is based on coursework for courses that extend over more than one semester. For example, a course that requires enrollment for two consecutive semesters would be eligible for an IP grade in the first term (i.e., Undergraduate Senior Project). A grade of IP should not be given for coursework to be completed in one given term. It cannot be substituted for a grade of I. The IP grade expires after six years, and if no final grade has been

awarded by that time, the IP grade will default to a grade of N (no credit).

### Grade of W (Withdrawal)

No grade will be given for a course dropped on or before the last day to drop a course without record. After this period, students may only withdraw from a course in accordance with the conditions and deadlines in the Withdrawals policy. Students who withdraw without extenuating circumstances will receive a grade of W and are allowed no more than 16 credit hours of W grades over their academic careers. Students who withdraw under formally recognized extenuating circumstances will receive a grade of WE, indicating that the withdrawn hours do not count against the student's W-limit hours. Post-deadline withdrawal is only allowable for recognized extenuating circumstances. Unsatisfactory academic performance itself is not an extenuating circumstance. The grade of W or WE is posted on the academic transcript.

### Pass/No Credit Option

Every student will be permitted during his/her undergraduate years to select up to a total of four courses (at most one per academic year) in which he/she can receive an evaluation of H (honors), P (pass), or N (no credit). This option is designed to encourage curiosity, exploration, and experimentation in areas where a student has strong interest but little or no previous experience. The Pass/No Credit option only applies to courses normally graded on an A-F scale, and it cannot be used on courses taken by a student for credit toward his/her major or minor or to satisfy University General Education requirements. *[Note: courses designated by the faculty to be graded on a Pass/No Credit basis may count for the major.]* To exercise this option, the student must declare his/her intention to take a Pass/No Credit option by completing the appropriate form at the Office of the Registrar by the end of the eighth instructional day in the semester; this form requires the approval of the chair of the student's major department. Courses completed with the grade of Honors or Pass will count toward the hours needed for graduation, but they will not be considered in the computation of the grade point average.

### Unsatisfactory Grade Reports

Unsatisfactory Grade Report notifications are sent via email to students in the middle of each semester for courses in which the student is performing below average and a grade has been reported. Students should also seek feedback from instructors. Unsatisfactory grades are available through the secure student access pages of 49er Express found online at [49erexpress.uncc.edu](http://49erexpress.uncc.edu).

## Final Grades

Final grades are available through the secure student access pages of 49er Express found online at [49erexpress.uncc.edu](http://49erexpress.uncc.edu).

### Final Grade Changes and Appeals from Final Course Grades

When a final course grade other than Incomplete (I) is officially reported by the instructor at the end of an academic term, the grade is recorded by the Office of the Registrar and can be changed only if the grade has been assigned arbitrarily or impermissibly as defined in University Policy 410, Policy and Procedures for Student Appeals of Final Course Grades, available online at [legal.uncc.edu/policies/up-410](http://legal.uncc.edu/policies/up-410).

Students should follow the procedures outlined in the policy if they believe that the final course grade that has been assigned is incorrect. The policy requires the student to discuss the grade with the instructor as soon as possible after the grade is received. Students should note, however, that the University is not obliged to respond to a grade appeal unless the student files it with the appropriate department chairperson or interdisciplinary program director within the first four weeks following the last day of the regular semester or the summer term in which the grade was received. When a grade is assigned consistent with University policy, only the instructor has the right to change the grade except as provided in the Incomplete grade policy. When an instructor reports a grade change for a grade other than I, the online "Change of Grade" form must be approved by his/her department chair and college dean, or the assigned designee of the department chair and/or college dean.

### Repeating Courses

Students may receive credit for a course one time only, unless the course description specifies that it "may be repeated for credit." However, students can repeat a course to improve their GPA under two different sets of conditions. In the first case, within the limits specified in the next section, students may replace a grade. This process is called "With Grade Replacement." In the second case, a student may repeat a course with the new grade averaging in with all others for this same course. This is specified in the second section below as "Without Grade Replacement."

#### With Grade Replacement

Undergraduate students may replace up to two (2) courses (maximum of 8 credit hours) for grade replacement. Both grades will be reflected on the transcript. However, the higher of the two grades will be used in calculation of the GPA. This policy applies to courses first taken in Fall 2007 and thereafter. *[Note: Some courses in the College of Health and*

*Human Services may not allow grade replacement.]*

All courses for which a grade of A, B, C, D, or F may be assigned are eligible for grade replacement under this policy. The course to be replaced and the repeat course must have their grades assigned by UNC Charlotte.

Students must submit a completed “Grade Replacement” online form through Banner Self-Service by the last day to Add/Drop a course with no record in the semester or summer session in which the course is to be repeated. A repeated course may not be selected retroactively to use this grade replacement policy. In courses for which the final grade assigned was a D or F, the student may submit the “Grade Replacement” online form requiring no further approval, providing it is within the course and hour limits specified in this policy. In courses for which the final grade assigned was a C or above, the student must submit the online form that will be routed electronically to obtain approval of the department chair and the dean of the college of the student’s program or major, and remain within the two-course, eight-hour limitations of this policy. Once a student has filed a “Grade Replacement” form for a course that choice cannot be revoked due to withdrawing from the course or from the University. (Medical or special circumstances may be reviewed on a case-by-case basis.) The original course grade will be the grade of record for the course and not a W. Any such withdrawal still consumes one of the two course substitutions permitted under this policy. Students enrolled in special topics courses for a grade replacement must enroll in the same topic for which they originally received the grade to be replaced. A grade received owing to an admitted or adjudicated academic dishonesty violation shall not be replaced if the course is repeated. This exception is not subject to appeal or academic petition.

### Without Grade Replacement

In all courses which are not identified as being repeatable for additional credits, a student who has received a grade of C, H, P, or above in a course may repeat that course only with prior approval of the student’s advisor, department chair, and dean. Students seek approval by completing an “Academic Petition” form found online at: [registrar.uncc.edu/forms](http://registrar.uncc.edu/forms) or via Banner Self Service at <https://selfservice.uncc.edu>. An undergraduate student who received a D, F, or U in a course may repeat a course without seeking outside approval. All grades for repeated courses will be shown on the student’s official transcript and be used in the calculation of the grade point average. For prerequisite purposes, the most recent grade will be used whether or not it is the highest.

## Credit Hours

Credit hours, also known as semester hours, are the number of hours a course is allocated. The majority of undergraduate courses have three (3) credit hours, while labs and other courses may have one, two, four, or more credit hours. Attempted, passed, and earned credit hours are reported on transcripts.

## Quality Points

Quality points, also known as grade points, are determined by multiplying the number of points assigned to each grade (A = 4, B = 3, C = 2, D = 1, F = 0) by the number of credit hours associated with that course. Refer to example below.

## GPA Hours

GPA hours, also known as quality hours, are the total number of credit (semester) hours in the graded courses the student has attempted, except for those for which a grade of I, IP, W, P, AU, or N is recorded. Refer to example below.

## Grade Point Average (GPA)

The grade point average for an undergraduate student is determined by adding all accumulated quality points together, and then dividing by the total number of GPA hours the student has attempted, excluding those for which the student received a grade of I, IP, W, H, P, AU, or N. In computing the grade point average, only those credits attempted at UNC Charlotte or through the Charlotte Area Educational Consortium are included. Refer to the example below.

### Example of Transcript:

Subject	Course	Grade	Credit Hours	Quality Points
AMST	2050	P	3.000	0.00
CHEM	1251	F	3.000	0.00
CHEM	1251L	F	1.000	0.00
UWRT	1101	B	3.000	9.00
ENGR	1201	C	2.000	4.00
LBST	2101	C	3.000	6.00
MATH	1241	C	3.000	6.00

### Term Totals (Undergraduate)

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term	18.000	14.000	14.000	15.000	25.00	1.667
Cumulative	18.000	14.000	14.000	15.000	25.00	1.667

### Example of GPA Calculation:

GPA = Quality Points/GPA Hours; 25/15=1.667

## GPA Calculator

To calculate grade point averages, visit [registrar.uncc.edu/gpa-calculator](http://registrar.uncc.edu/gpa-calculator).

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# Academic Standing

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## Academic Honors

### Chancellor's List

The Chancellor's List recognizes undergraduate degree-seeking students with outstanding records of academic performance. To qualify for the Chancellor's List during the Fall or Spring semester, a full-time student must earn a grade point average of at least 3.8 in 12 or more semester hours of credit graded A, B, or C, with no grade less than C. A part-time student must earn a combined fall and spring grade point average of at least 3.8 in 12 or more semester hours of credit graded A, B, or C, with no grade less than C. To qualify for the Chancellor's List as a part-time student, a student must enroll on a part-time basis in both fall and spring semesters in the same academic year.

Students who receive the grade of AU, H, or P are not excluded from recognition as long as 12 hours are completed with A, B, or C. Students who receive the grade of D, F, I, NR, or N are not eligible for recognition. Chancellor's List recognition appears on the student's academic record (official transcript).

### Dean's List

The Dean's List recognizes undergraduate degree-seeking students with superb records of academic performance. To qualify for the Dean's List during the Fall or Spring semester, a full-time student must earn a grade point average of at least 3.4 and not more than 3.79 in 12 or more semester hours of credit graded A, B, or C, with no grade less than a C. A part-time student must earn a combined Fall and Spring grade point average of at least 3.4 and not more than 3.79 in 12 or more semester hours of credit graded A, B, or C, with no grade less than C. To qualify for the Dean's List as a part-time student, a student must enroll on a part-time basis in both Fall and Spring semester in the same academic year.

Students who receive the grade of AU, H, or P are not excluded from recognition as long as 12 hours are completed with grades of A, B, or C. Students who receive the grade of D, F, I, NR, or N are not eligible for recognition. Dean's List recognition appears on the student's academic record (official transcript).

### Graduation with Distinction

Students may earn undergraduate degrees at different levels of distinction: Cum Laude ("With Honor"), Magna Cum Laude ("With Great Honor"), and Summa

Cum Laude ("With Highest Honor"). Each of the undergraduate degrees is awarded Cum Laude when the graduating student's cumulative GPA is 3.4 or more but less than 3.7, Magna Cum Laude when it is at least 3.7 but less than 3.9, and Summa Cum Laude when it is at least 3.9. To be eligible to graduate with distinction, a student must have a grade point average computed on at least 48 semester hours of credit completed in residence at UNC Charlotte.



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## Requirements for Continued Enrollment

### Good Academic Standing

To remain in good academic standing, an undergraduate student must maintain a cumulative grade point average (GPA) of at least 2.0.

### Semester Warning

An undergraduate student whose term GPA is below 2.0 in the semester of the evaluation is given a "semester warning." This indicates potential academic problems and is communicated to the student and to the student's advisor and major department(s). Semester warnings do not appear on the student's permanent academic record.

### Academic Probation

An undergraduate student whose cumulative GPA is below 2.0 is placed on academic probation. This status is noted on the student's permanent academic record with the semester of the evaluation, and continues until the next evaluation opportunity.

### Academic Suspension

An undergraduate student on academic probation whose cumulative GPA remains below 2.0 at the next evaluation is suspended from the University, unless the student's GPA for that semester is at least 2.3, in which case the student remains on probation instead. Academic suspension is noted on the student's permanent academic record.

### **Exception for Summer Enrollment**

Students who are on academic suspension are permitted to enroll in Summer Session classes, but they are not eligible to enroll for Fall or Spring semesters until they have applied and been approved for reinstatement or readmission.

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## Readmission of Former Students

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The following individuals must make application for readmission to the University prior to the semester or summer term for which registration is sought: a former student who has graduated, a former student who has been suspended for academic or disciplinary reasons,



and a student who has not been enrolled for 12 consecutive months after the semester last attended at UNC Charlotte. (Example of the latter: last enrolled Fall semester 2009; not enrolled Spring or Fall 2010; to enroll in Spring 2011 student must apply in Fall 2010.) Readmission is not automatic; students applying for readmission must meet the requirements of the major in which they wish to return.

Application should be filed at the Office of the Registrar in accordance with the published dates. Official transcripts from any institution attended during the student's absence from the University must be submitted prior to enrollment.

### **Forgiveness Policy**

Undergraduate students who have a break in enrollment from UNC Charlotte for a minimum period of 24 consecutive months or undergraduate students who have a break in enrollment from UNC Charlotte for a minimum of one regular semester and earn an Associate of Arts (AA), an Associate of Science (AS), an Associate of Fine Arts (AFA), or an Associate of Engineering (AE) degree are eligible for readmission with forgiveness. Students may be readmitted one time only under this policy.

The Forgiveness Policy will be applied automatically upon readmission if the student is eligible. Students electing not to apply the Forgiveness Policy may request to waive the policy in its entirety at the time of readmission only.

If a student is readmitted with forgiveness, only those courses for which the student has received a grade of C or above (or H or P) can be used for academic credit. Readmission under the forgiveness policy also resets the student's W-limit hours (see *Withdrawals Policy* under the "Termination of Enrollment" heading in this section) to the full 16 hours. The GPA will be based only on the courses that return with the student and the courses taken after readmission. Eligibility for continued enrollment is determined as in the case of transfer students. To qualify for graduation with honors, a readmitted student must have a GPA computed on at least 48 hours taken in residence on which the UNC Charlotte GPA is based.

### **Second Baccalaureate Major/ Baccalaureate Minor**

Students who have earned a bachelor's degree from UNC Charlotte may apply for readmission into a program leading to a second major, minor, or second degree (see the "Declaring Undergraduate Majors and Minors" heading in this section). Students readmitted for a second degree are not eligible for application of the forgiveness policy toward the first degree.

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## Academic Appeal and Grievance Procedures

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Academic appeals and grievances are generally addressed by the college where the appeal or grievance arises or, if no particular college is appropriate, by the Office of the Registrar. Undergraduate students may appeal an academic suspension by submitting a written statement online to the Office of the Registrar at [registrar.uncc.edu/students/academic-suspension](http://registrar.uncc.edu/students/academic-suspension).

Decisions about suspension appeals are made by the chair of the department in which the student is enrolled or the dean of University College if the student's major is undeclared. For all other academic

appeals, undergraduate students must complete an “Academic Petition,” found online at [registrar.uncc.edu/forms](http://registrar.uncc.edu/forms) or via Banner Self Service online at <https://selfservice.uncc.edu>, including recommendations of approval.

For additional information on grievances, see University Policy 411, “Student Grievance Procedure,” online at [legal.uncc.edu/policies/up-411](http://legal.uncc.edu/policies/up-411).

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# Transfer Credit and Advanced Academic Standing

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Evaluation of transfer credits, advanced standing, CLEP, AP, and IB are coordinated through the Office of Undergraduate Admissions. Prospective students who desire further information about policies and procedures for awarding credit should contact the Office of Undergraduate Admissions or utilize the “Transfer Credit Advisor” tool online at [admissions.uncc.edu](http://admissions.uncc.edu).

UNC Charlotte will accept appropriate undergraduate credits earned through AP, IB, CLEP, armed forces service schools, and college level courses completed prior to graduation from high school. In addition, UNC Charlotte will accept or transfer appropriate undergraduate and graduate credits earned at another accredited institution or through credit by examination. Credit toward a degree is not awarded for Continuing Education Units (CEUs) or for remedial level college courses.

## Advanced Placement Course Credit (AP)

The University will accept appropriate undergraduate credits earned through Advanced Placement Program Tests completed prior to graduation from high school. Students must request that official Advanced Placement test results be sent directly to the Office of Undergraduate Admissions for evaluation (UNC Charlotte code 5105). Prospective students who desire further information about policies and procedures for awarding credit should view score requirements and other related information at [admissions.uncc.edu](http://admissions.uncc.edu). No more than 8 credit hours can be awarded for any single Advanced Placement exam.

## International Baccalaureate Program (IB)

The University will award credit for subjects in which students score appropriate scores on the IB examinations. View score requirements at [admissions.uncc.edu](http://admissions.uncc.edu).

## College Level Examination Program (CLEP) General Examination

An undergraduate student may receive up to 23 semester hours of elective credit.

## Subject Matter Examinations

Credit may be awarded for subject matter examinations listed below at the levels recommended in the current edition of CLEP Scores: Interpretation and Use.

### Business

Information Systems and Computer Applications  
Introductory Accounting  
Introductory Business Law  
Principles of Management  
Principles of Marketing

### Education

Human Growth and Development  
Introduction to Educational Psychology

### Foreign Language

College French I and II  
College German I and II  
College Spanish I and II

### Humanities

American Literature  
Analysis & Interpretation of Literature  
College Composition (with Essay)  
English Literature

### Mathematics

Calculus w/Elementary Functions  
College Algebra  
College Algebra-Trigonometry  
Trigonometry

### Sciences

General Biology  
General Chemistry

### Social Sciences

American Government  
American History I and II  
Introduction to Macroeconomics  
Introduction to Microeconomics  
Introduction to Psychology

Introduction to Sociology  
Western Civilization I and II

CLEP credit will be awarded according to UNC Charlotte policy in place at the time of evaluation. View score requirements at [admissions.uncc.edu](http://admissions.uncc.edu).

The amount of CLEP credit that is applicable to a specific degree program is determined by the department offering the program.

## Transfer Credit from Other Institutions

Official transcripts are evaluated in the Office of Undergraduate Admissions and the results are provided to the applicant and to the major department/college. Determining the applicability of transferred credits to major or program requirements is the responsibility of the department chairperson or program director. General rules governing transfer credit:

- 1) Only courses taken at a regionally accredited institution will be considered for transfer credit.
- 2) Provisional transfer credit may be granted for study at foreign institutions or certain U.S. institutions that are not regionally accredited, but must be validated by 30 semester hours of successful performance in residence at UNC Charlotte.
- 3) Courses for which credit is accepted must be appropriate for approved University programs and curricula in which the student is enrolled.
- 4) No credit below C level will be accepted; grade points and averages do not transfer.
- 5) Transfer credit is awarded only upon receipt in the UNC Charlotte Office of Undergraduate Admissions of an official transcript from the institution where the credit was earned.

Students who hold a baccalaureate degree from an accredited institution will not be required to satisfy the UNC Charlotte General Education Requirements for a second degree. Students will be issued a transfer credit report and will have their credit from their first degree evaluated.

## Credit for Military Training

The University will approve academic credit for military training equivalent to UNC Charlotte courses required for the students' major, minor, or General Education requirements. The credit must be approved by the student's major department chair, college dean, and the department that offers the course.

Documentation of the training, such as a license of completion or notation on the student's DD Form 214, is required. The same requirements apply to transfer or

military training credit approved by another institution. Contact the Office of the Registrar for further information.

## Credit from Two-Year Institutions

The University accepts a maximum of 64 semester hours of credit from two year institutions for undergraduate students. Remedial and technical courses will not transfer.

## Transient Study

Courses undertaken by UNC Charlotte undergraduate degree students at other accredited institutions may be transferred to the University subject to the following regulations:

- 1) The University is not obligated to accept any credit from another institution unless the student has obtained the prior approval of the dean of the college in which he/she is enrolled. A "Permit for Transient Study" form should be completed and filed in the UNC Charlotte Office of the Registrar prior to enrollment at another institution.
- 2) No credit will be accepted for courses below C level for undergraduate students.
- 3) The student must request that an official transcript be mailed to the UNC Charlotte Office of the Registrar upon completion of the course. A form for this purpose is available in the Office of the Registrar at the institution where the course is taken.
- 4) Students in the College of Liberal Arts & Sciences and students in the University College are not permitted to take courses at another educational institution in the Fall or Spring semester if they are enrolled full-time (12 credits or more) at UNC Charlotte in the same semester, unless it is a course not offered at UNC Charlotte (e.g., American Sign Language).
- 5) Grades do not transfer.

## Credit by Examination

A student currently enrolled at UNC Charlotte may pass a specially prepared challenge examination and receive credit for a University course without having to do the normal course work. The student contacts the chair of the department in which credit is sought to request administration of an examination. Since it may not be appropriate to award credit by examination for some courses, the decision to offer an examination is that of the department. If the chair authorizes an examination, the student is instructed to pay the required fee for credit by examination and to bring the receipt of payment to the examination. Hours earned through credit by examination will be indicated on the transcript, but no grade points will be awarded. Hours attempted will be assigned equal to the hours earned.

Failure on such an examination will incur no grade point penalty or hours attempted. A department may allow a student to take examinations for courses not offered at UNC Charlotte, if it deems it appropriate to do so. No student may challenge a course for which either a passing or failing grade has been received at UNC Charlotte.

## Transfer Students Exempt from the First-Year Writing Requirement

Students will be deemed to have fulfilled the First-Year writing requirement (UWRT 1101 and UWRT 1102) if either of the following apply: a) exemption from first-year writing (without credit) at another college or university; or b) 64 or more transferred credit hours from U.S. institution(s) of higher education. (Some exceptions may apply for students with transferred credit hours from institutions where English is not the language of instruction.)

## Transfer Students Exempt from the Lower-Division General Education Requirements

Some transfer students are exempt from the lower-division General Education requirements\* if they are admitted to the University in Fall 2003 or thereafter. These include:

- Students from North Carolina Community Colleges who receive an Associate of Arts (AA), Associate of Science (AS), or an Associate of Fine Arts (AFA).
- Students from North Carolina Community Colleges who have completed the 44 hour general education core. (Comprehensive Articulation Agreement, CAA)
- Students who graduate from a North Carolina Community College with an Associate of Applied Science (AAS) and enroll at UNC Charlotte in an approved 2+2 degree completion program. (In this case, the exemption becomes invalid if the student changes programs.)

Transfer Students from out-of-state and private institutions of higher education who receive an Associate Degree from that institution will have the degree evaluated for the same General Education exemption on a case by case basis by the Office of Undergraduate Admissions. The criteria used in the evaluation will be the amount of college-level English, math, natural science, social science, and humanities course work that is included in the degree's curriculum. Curricula that are more technical in nature or lack key features of the UNC Charlotte General Education core may not be approved for an exemption from lower-division General Education

requirements, but individual courses will be accepted towards the UNC Charlotte requirements.

*\*“Lower-division General Education requirements” refers to courses in composition, mathematics and logic, sciences, social sciences, liberal studies (LBST), and three (3) credits designated as writing intensive and one to three (1-3) credits designated as oral communications. Students MUST still complete three semester hours in the major designated as Writing Intensive (W) to satisfy all General Education requirements for graduation.*

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# Graduation

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<http://graduation.uncc.edu>

## Application for the Degree

Each student must make application for his/her degree no later than the filing date specified in the academic calendar. The application may be submitted online through the Office of the Registrar at [registrar.uncc.edu](http://registrar.uncc.edu). The diploma and transcript will reflect the term in which all requirements were completed, and the diploma will be mailed to the student's address of record.

Students completing their degree requirements in May participate in the May ceremony. Students completing degrees in a summer term, as well as those completing in December, participate in the December ceremony.



## Teacher Licensure

Students who have completed degree requirements and obtained passing scores on appropriate exit tests (e.g., Principles of Teaching and Learning, Praxis II Subject Assessments) must apply for licensure through the Teacher Education Advising, Licensure, and Recruitment (TEALR) Office in the College of Education. TEALR will process and submit application packets including Praxis scores, final transcripts, and

required fees to the North Carolina Department of Public Instruction (NCDPI). Licenses are mailed directly to applicants by NCDPI.

## Commencement Marshals

At each Commencement ceremony, the University honors the juniors with the highest grade point averages by inviting them to serve as the marshals who lead the processions of graduates, faculty members, and the platform party. To select students for this honor, the University considers juniors who have completed 75 hours of degree work, enrolled full-time (12 or more hours per semester) during the two most recent semesters, and are able to attend the ceremony.



## Academic Records and Transcripts

The Office of the Registrar is responsible for maintaining the official academic records for all students. Upon written request by the student or an online request through Banner Self-Service, an official transcript of the academic record will be issued to the person or institution designated, provided that all the student's obligations to the University have been settled satisfactorily.

Requests should reach the Office of the Registrar at least one week before the date the transcript is needed. Students may request an official transcript through the secure student access pages of self service via 49er Express found online at [49erexpress.uncc.edu](http://49erexpress.uncc.edu) or complete a request form available at [registrar.uncc.edu/transcript-order](http://registrar.uncc.edu/transcript-order). The Office of the Registrar cannot accept requests via email or telephone.

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# Family Educational Rights and Privacy Act (FERPA) Annual Notification

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The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. These rights include:

- (1) The right to inspect and review the student's education records within 45 days of the day the University receives a request for access.

Students should submit to the Office of the Registrar, dean of their college, chair of their major academic department, or other appropriate official written requests that identify the record(s) they wish to inspect. University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

- (2) The right to request the amendment of the student's education records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA.

A student who wishes to ask the University to amend a record should write the University Registrar, clearly identify the part of the record the student wants changed, and specify why it should be changed.

If the University decides not to amend the record as requested, the University will notify the student in writing of the decision and the student's right to a hearing regarding the request for amendment. Additional information regarding the hearing

procedures will be provided to the student when notified of the right to a hearing.

(3) The right to provide written consent before the University discloses personally identifiable information from the student's education records, except to the extent that FERPA authorizes disclosure without consent, to the following parties or under the following conditions:

- *School officials with legitimate educational interest;*
- *To officials of another school in which a student seeks or intends to enroll or is already enrolled, so long as the disclosure is for purposes related to the student's enrollment or transfer;*
- *Specified officials for audit or evaluation purposes;*
- *Appropriate parties in connection with financial aid to a student;*
- *Organizations conducting certain studies for or on behalf of the school;*
- *Accrediting organizations;*
- *To comply with a judicial order or lawfully issued subpoena;*
- *Appropriate officials in cases of health and safety emergencies; and*
- *State and local authorities, within a juvenile justice system, pursuant to specific State law.*

A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibilities for the University.

"Directory Information" means information in a student's education record that would not generally be considered harmful or an invasion of privacy if disclosed. At UNC Charlotte, directory information consists of the student's name, major field of study, dates of attendance, enrollment status, and degrees and awards (including scholarships) received. Photographs, videos, or other media containing a student's image or likeness (collectively, "student images") and University-issued student electronic mail addresses ("email addresses") are designated by UNC Charlotte as "limited use directory information." Use and disclosure of limited use directory information will be restricted to: (1) publication in official University publications or on social media sites or websites hosted or maintained by, on behalf of, or for the benefit of the University, including the University's online directory and internal email system; (2) University officials who have access, consistent with FERPA, to such information and only in conjunction with a legitimate educational interest; and (3) external parties contractually affiliated with the University,

provided such affiliation requires the sharing of limited use directory information.

Currently enrolled students may request that the University withhold disclosure of Directory Information by completing the appropriate form available in the Office of the Registrar. A request for non-disclosure will be honored by the University indefinitely, unless the student submits to the Office of the Registrar a written revocation of such request for non-disclosure.

As of January 3, 2012, the U.S. Department of Education's FERPA regulations expand the circumstances under which a student's education records and personally identifiable information (PII) contained in such records — including his or her Social Security Number, grades, or other private information — may be accessed without the student's consent. First, the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or state and local education authorities ("Federal and State Authorities") may allow access to a student's records and PII without the student's consent to any third party designated by a Federal or State Authority to evaluate a federal- or state-supported education program. The evaluation may relate to any program that is "principally engaged in the provision of education," such as early childhood education and job training, as well as any program that is administered by an education agency or institution. Second, Federal and State Authorities may allow access to the student's education records and PII without his or her consent to researchers performing certain types of studies, in certain cases even when the University objects to or does not request such research. Federal and State Authorities must obtain certain use-restriction and data security promises from the entities that they authorize to receive the student's PII, but the Federal and State Authorities need not maintain direct control over such entities. In addition, in connection with Statewide Longitudinal Data Systems, State Authorities may collect, compile, permanently retain, and share without the student's consent PII from his or her education records, and they may track the student's participation in education and other programs by linking such PII to other personal information about the student that they obtain from other Federal or State data sources, including workforce development, unemployment insurance, child welfare, juvenile justice, military service, and migrant student records systems.

(4) The right to file a complaint with the U.S. Department of Education concerning alleged

failures by the University to comply with the requirements of FERPA. The name and address of the Office that administers FERPA is:

Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington, DC 20202-8520

UNC Charlotte intends to comply fully with these requirements. University Policy 402, Student Records, explains the procedures for compliance. Students may obtain copies of the policy in the Office of the Registrar or online at [legal.uncc.edu/policies/up-402](http://legal.uncc.edu/policies/up-402). That policy includes a list of the locations of all education records maintained by the institution.

All questions concerning this FERPA Annual Notification may be directed to the attention of the Office of the Registrar.

# *Financial* Information



# Financial Information

<http://studentaccounts.uncc.edu>

## Tuition and Fees

UNC Charlotte is a publicly-supported institution and primarily receives its revenue from the State of NC appropriations in addition to tuition and fees. It is the combination of tuition and fees that primarily supports the operations and expansion of UNC Charlotte. Tuition and fees are approved by the Student Representatives, UNC Charlotte Board of Trustees, and the UNC Board of Governors. Tuition rates are also approved by the NC General Assembly. These fees are mandatory to every student and cannot be waived.

Tuition and fees are billed by the semester for Fall and Spring terms and by credit hour for Summer terms. 12 or more credit hours are considered full-time for undergraduates and 9 or more credit hours are considered full-time for graduates. Students taking fewer than the 12 hours for undergraduate study or 9 hours for graduate study are charged a prorated portion of tuition and fees.

Charges for tuition and fees vary according to the student's status as a resident or non-resident of North Carolina. A non-resident student pays a higher rate of tuition than a legal resident. For more details, see the heading for *Residence Status for Tuition Purposes* later in this section.



Following are the tuition and required fees for 2015-2016:

UNDERGRADUATE TUITION AND FEES				
	1-5 Credit Hours	6-8 Credit Hours	9-11 Credit Hours	12+ Credit Hours
NC Resident Tuition (in-state)	453.50	907.00	1360.50	1814.00
Non-NC Resident Tuition (out-of-state)	2100.00	4199.75	6299.75	8399.50
Campus Security Fee	6.25	10.00	15.00	15.00
Ed & Tech Fee	72.00	134.00	248.00	248.00
Food Service Facility Fee	10.00	10.00	10.00	10.00
General Fee	389.00	714.25	1156.50	1156.50
ID Fee	7.00	7.00	7.00	7.00
Transportation Services Fee	15.00	15.00	15.00	15.00
UNC System Assoc Fee	0.15	0.25	0.50	0.50
<b>Resident Total Tuition &amp; Fees (in-state)</b>	<b>952.90</b>	<b>1797.50</b>	<b>2812.50</b>	<b>3266.00</b>
<b>Non-Resident Total Tuition &amp; Fees (out-of-state)</b>	<b>2599.40</b>	<b>5090.25</b>	<b>7751.75</b>	<b>9851.50</b>

The University reserves the right, with the approval of proper authorities, to make changes in tuition and fees at any time. The University also reserves the right to correct any clerical errors on a student's account. For the most current listing of tuition and fees at The University of North Carolina at Charlotte, see [studentaccounts.uncc.edu](http://studentaccounts.uncc.edu).

### Tuition Surcharge

UNC Charlotte follows regulations regarding Tuition Surcharge established by the State of North Carolina. These regulations change frequently. The current state policy can be found at [registrar.uncc.edu/common-requested-information/tuition-surcharge](http://registrar.uncc.edu/common-requested-information/tuition-surcharge).

## Required Fees

The required fees included in the Tuition and Fees table above are explained below.

### Ed and Tech Fee

This fee is directly related to the infrastructure supporting student technology needs across campus including hardware and software applications, supplies for educational materials, web services, laboratory expenses and equipment, public student computing labs, central email and Internet services, training classes and classrooms, and central help desk services.

### General Fee

This is a consolidated fee that relates to University debt service payments (to construct new facilities and purchase administrative computing systems) and to support other activities/operations including Athletics programs and events, the Student Health Center that serves our student population, Student Activity Center operations, and Student Union operations. The following fees are consolidated into the General Fees:

- *Athletics* - Funds intercollegiate athletics, including salaries and maintenance and operation of athletic facilities.
- *Health Services* - Funds medical services for students, including the salaries, maintenance and operation of student health centers.
- *Student Activities* - Funds non-academic student services (student unions, intramural facilities, student organizations, newspapers, yearbooks, and entertainment programs).
- *Debt Service* - Funds the principal and interest for capital projects. Examples for UNC Charlotte include the Student Union, Football Stadium, and Student Activity Facility.

### ID Fee

This fee supports the University's 49er Card operations and support. The ID card is not only used for identification purposes, but also as a library card and as a campus card for dining and vending purchases.

### Transportation Fee

This fee helps to fund the campus transportation shuttle system which operates during the fall and spring semesters. The shuttle serves to provide the UNC Charlotte campus with efficient and safe campus transportation, reduce vehicular congestion and decrease the demand for proximity parking.

### UNC System Student Association Fee

This fee is a University of NC system-wide fee charged to all system students to support the University Of

North Carolina Association of Student Governments. This association is a student led advocacy group whose main purpose is to ensure that the benefits of the University of North Carolina are extended to the people of North Carolina, as far as practicable, free of expense.

## Additional Fees

The following additional college or course fees are charged to cover the cost of supplies or special materials:

ADDITIONAL COLLEGE/COURSE FEES (PER SEMESTER)	
Course	Fee
College of Arts + Architecture Student Fee	\$62.50
College of Computing and Informatics Student Fee	\$112.50
College of Engineering Student Fee	\$150
Experiential Learning Fee/Co-op	\$60
International Student Fee (students with Visa type F or J)	\$50
KNES 1290 First Aid: Responding to Emergencies	\$20
KNES 2219 Scuba Diving	\$60
KNES 2220 Advanced Scuba Diving	\$35
KNES 2290 Emergency Medical Response	\$20
KNES 2295 Care and Prevention of Athletic Injuries	\$30

### Application Fee

A \$60 application fee must be submitted with the application for admission. The fee is nondeductible and nonrefundable.

### Credit by Examination Fee

A written examination for a course requires a fee of \$15. A laboratory examination requiring the arrangement of such things as laboratory materials will require a fee of \$25. A combination of a laboratory and written examination will require a fee of \$30.

### Graduation Fee

Each member of the graduating class is automatically charged a graduation fee of \$57 (Bachelor or Certificate), \$70 (Master's), and \$83 (Doctoral) at the time of application for the degree and/or certificate. (*Note: If a student needs to change their graduation term for any reason to a subsequent semester, they must resubmit an application for degree and/or certificate.*) This fee includes the cost of the diploma/certificate, the cap and gown, and the

standard hood for graduate degree students. Doctoral students have the option of ordering custom regalia through the bookstore for an additional fee. No reduction of the fee is allowed for those receiving degrees in absentia.

### Matriculation Fee

Instead of paying separate fees for such things as new student convocation, commencement, and hardcopy academic transcripts, UNC Charlotte students pay a \$100 matriculation fee and receive these and other services at no charge. Students are charged the matriculation fee upon entry into a baccalaureate, graduate certificate, master's, or doctoral program at UNC Charlotte.

## Residence Status for Tuition Purposes

Tuition charges are based upon classification of a student as a resident or a non-resident of North Carolina for tuition purposes. UNC Charlotte shall determine whether a student is a resident or a non-resident for tuition purposes in accordance with North Carolina General Statutes that are summarized below. A more complete explanation of the statute and the procedures are contained in *The North Carolina State Residence Classification Manual*. Copies of the *Manual* are available for inspection in the Library, in the Residency Determination Office, and online at [resdetermination.uncc.edu](http://resdetermination.uncc.edu).



### Residence

Generally, in order to qualify as a resident for tuition purposes, a person must be a legal resident of North Carolina AND must have been domiciled in North Carolina for at least twelve (12) consecutive months immediately prior to the beginning of the term. In order to be eligible for such classification, the person must establish that his or her presence in the state during such twelve-month period was for purposes of maintaining a bona fide domicile rather than for purposes of mere temporary residence incident to enrollment in an institution of higher education.

### Initiative and Proof of Status

A student is responsible for seeking reclassification as

a resident for tuition purposes. A student must (1) provide all of the information that the residency application requires for consideration of residence classification and (2) establish facts that justify classification as a resident for tuition purposes. (See *Residence Application Procedure below*.)

### Parents' Domicile

If a dependent student has living parents or a court-appointed guardian who maintain bona fide domicile in North Carolina, this fact shall be prima facie evidence that the student is also domiciled in North Carolina. ***This primary proof of the student's legal residence may be supported or rebutted by other information relative to the applicant's age and general circumstances.***

If a student's parents or legal guardian are domiciled outside of North Carolina, this fact shall be prima facie evidence that the student is also not domiciled in North Carolina, unless the student has lived in North Carolina for the five years preceding enrollment or re-registration at UNC Charlotte.

### Domicile of Non-U.S. Citizens

If a student is not a U.S. citizen, he or she may or may not qualify for resident tuition on the same basis as a U.S. citizen. The type of immigration documentation held by the student will determine if he or she has capacity to (i.e., is legally able to) establish legal residence for tuition purposes. However, that person must still take the actions and have the intent necessary to establish legal residence.

### Effect of Marriage

A person does not automatically obtain North Carolina domicile solely by marrying a North Carolina resident. If both student and spouse have established a North Carolina domicile and the spouse has met the 12-month requirement, the student who has not met the requirement may borrow his or her spouse's domicile to meet the 12-month requirement. However, the two durations cannot be added together to meet the 12-month requirement.

### Military Personnel

A North Carolinian who serves outside the State in the armed forces does not lose North Carolina domicile and thus North Carolina legal residence simply by reason of such service. Students in the military may prove retention or establishment of legal residence by reference to residuary acts accompanied by residuary intent.

An active duty service member stationed in North Carolina, as well as his or her spouse, dependent children, and dependent relatives who are living with the service member shall be charged the in-state

tuition rate along with any applicable mandatory fees. Under this provision, the dependent relative must comply with any applicable requirements of the Selective Service System.

Also, members of the North Carolina National Guard may be eligible to pay the in-state rate while attached to a military unit in North Carolina. Only the Guard member is eligible for this benefit.

Tuition benefits based on military service may be enjoyed only if requirements for admission to UNC Charlotte have been met. The military service tuition statute does not qualify a person for or provide the basis for receiving derivative benefits under other tuition statutes.

### **Employees**

Permanent full-time employees of The University of North Carolina who are legal residents of North Carolina qualify for the in-state rate even if they do not meet the twelve-month requirement. The employee's spouse and dependent children (using income tax dependency as the standard) who are legal residents also qualify for this benefit.

### **Grace Period**

If a student (1) is a legal resident of North Carolina, (2) has consequently been classified a resident for tuition purposes, and (3) has subsequently lost North Carolina legal residence while enrolled at UNC Charlotte, the student may continue to enjoy the in-state tuition rate for a grace period of 12 months measured from the date the student lost his or her status as a legal resident. If the 12 month grace period ends during an academic term in which the student is enrolled at UNC Charlotte, the grace period extends to the end of that term. Marriage to one domiciled outside of North Carolina does not, by itself, cause loss of legal residence.

### **Minors**

Minors (persons under 18 years of age) usually have the domicile and thus the legal residence of their parents. This presumption may be rebutted by other information in the case of divorce, legal separation, a deceased parent or a minor living with neither parent. Certain specific cases are recognized in determining residence for tuition purposes.

- a) If a minor's parents live apart, the minor's legal residence is deemed to be North Carolina for the time period(s) that either parent, as a legal resident of North Carolina, may claim and does claim the minor as a tax dependent. Under this provision, a minor deemed to be a legal resident will not, upon turning eighteen before enrolling at an institution of higher education, lose North

Carolina legal residence if he or she (1) acts in a manner consistent with bona fide legal residence in North Carolina and (2) begins enrollment at UNC Charlotte no later than the Fall academic term immediately following completion of education prerequisite to admission at UNC Charlotte.

- b) If a minor has lived for five or more consecutive years in the home of adult relatives (other than parents) who are domiciled in North Carolina and if the relatives have functioned during this time as if they were personal guardians, the minor will be deemed a resident for tuition purposes for the enrolled term commencing immediately after the five years in which these circumstances have existed. Under this provision, a minor deemed to be a resident for tuition purposes immediately prior to his or her eighteenth birthday will be deemed a legal resident of North Carolina for the required 12 month period when he or she turns eighteen; provided he or she does not abandon North Carolina legal residence.

### **Re-Establishment of Domicile within 12 Months**

If a student ceases enrollment at or graduates from an institution of higher education in North Carolina while classified a resident for tuition purposes and then abandons and reestablishes North Carolina legal residence within a 12-month period, that student shall be permitted to re-enroll at UNC Charlotte as a resident for tuition purposes without meeting the 12-month durational requirement. Under this provision, the student maintains the reestablished legal residence through the beginning of the academic term for which in-state tuition status is sought. A student may receive the benefit of this provision only once.

### **Transfer Students**

When a student transfers from one institution of higher education to another, he or she is treated as a new student and must be assigned an initial residence classification for tuition purposes.

### **Admitted and Readmitted Students**

A student accepted for initial enrollment at UNC Charlotte or permitted to re-enroll following an absence from the institutional program that involved a formal withdrawal from enrollment will be classified by the admitting institution either as a resident or as a non-resident for tuition purposes prior to actual enrollment.

### **Residency Application Procedure**

A newly admitted student or continuing student who has been classified as a non-resident for tuition purposes may pursue reconsideration of the residency

classification by submitting the Residence and Tuition Status Application and supporting documentation to the Residency Determination Office. The due date for submission of the NC Residence and Tuition Status Application in the Residency Determination Office along with all required documentation is by 5 p.m. on the 5th day of classes. Refer to the Residency Determination Office website at [resdetermination.uncc.edu](http://resdetermination.uncc.edu) for application deadlines for each semester.

### Appeal Procedure

A student, who has exhausted the residency application procedure and has been classified as a non-resident for tuition purposes, may request further consideration of that decision to the UNC Charlotte University Residence Status Appeals Board (URSAB) pursuant to the "Policy and Procedures for Determining Residence Status for Students at The University of North Carolina at Charlotte." This request must be in writing to the Chairperson of the URSAB and must be submitted to the Residency Determination Office within twenty (20) business days from the date of the issuance of the letter of determination. The request may consist simply of the statement, "I wish to appeal the decision of my residence classification for tuition purposes." It must be dated and signed and should indicate the applicant's UNC Charlotte student identification number, academic term, mailing address, e-mail address, and phone number.

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# Dining, Housing, and Parking

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<http://aux.uncc.edu>  
<http://housing.uncc.edu>  
<http://pats.uncc.edu>

## Dining and Meal Plans

Meal Plans, the 49er Account, and the Optional Dining Account all reside on the UNC Charlotte 49er ID Card.

### A Meal Plan purchase provides these advantages:

- Convenience: One card for all campus dining purchases
- Variety: many places to eat on campus
- Flexibility and Lifestyle: Meal plans to fit your dining needs; night and weekend dining
- Favorite Flavors: Many popular, national brands
- Diet Preferences: Vegetarian, vegan and healthy options available at every meal

### Overview of Meal Plans

- All freshmen living on campus are required to purchase a meal plan as part of their housing agreement.
- Unlimited meal swipe plans have been developed to maximize the dining variety and value offered by the new South Village Dining hall (SoVi) and Crown Commons in the Student Union.
- Declining Balance funds attached to meal plans are offered in practical amounts that have proven sufficient for most students.
- *Prices listed include sales tax, and pricing and plans are subject to change.*



**Meal Plan purchase is required by:**

- All freshmen living on campus regardless of their housing assignment. A meal plan must be purchased each semester of occupancy. Freshmen are defined as students who have earned 29 or fewer credit hours.
- Upperclassmen assigned to residence halls without private kitchens are also considered to be living in “required housing,” and must choose a meal plan as part of the housing contract. These residences include Hunt, Moore, Sanford, Scott, and the suites in Cedar, Hawthorn, Hickory, Lynch, Miltimore, Sycamore, Belk, Wallis, and Witherspoon. Meal plans are offered based upon the student’s current balance of earned credit hours.

For a listing of available Meal Plans and Meal Plans Policies, visit the Meal Plans webpages at [aux.uncc.edu/meal-plans](http://aux.uncc.edu/meal-plans).

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## Housing

The below figures are **2015-2016 rates** per semester and include rent, all utilities, cable TV service, Internet connectivity, Wi-Fi, weekly laundry allowance (where applicable), and membership in the Resident Students Association (RSA). *Prices and plans are subject to change.* Current pricing can be found online at [housing.uncc.edu/assignments/housing-rates](http://housing.uncc.edu/assignments/housing-rates).

HOUSING PER SEMESTER	
Type	Fee
Apartment	\$3,820 – \$4,690
Greek Village	\$3,905 - \$3,980
Highrise/Residence Hall – Double Room	\$2,830
Highrise/Residence Hall – Single Room ( <i>if available</i> )	\$3,790
Suite	\$3,580 - \$4,290

Admission to UNC Charlotte does not guarantee residence hall space. Arrangements for on-campus housing are made, after admission, with the Office of Housing and Residence Life. Shared Residence Hall space is not available to spouses or children of enrolled students.

### Housing Deposit

A \$200 deposit must be submitted with all housing contracts. The deposit is not applied toward payment of fees. It is refunded only after the student has left on-campus housing and only if the student has met all financial obligations to the University. In the case of contract cancellation, the date of receipt of the written request for cancellation will determine, in part, the

student’s financial obligation to the University (please see the Housing Contract for the current academic year for specific terms and cancellation dates).




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## Parking

Students attending UNC Charlotte (as well as faculty and staff) are required to register their motor vehicle(s) in order to park on campus. Vehicle registration and permit purchase is available online. Payment must be received before the permit is issued or mailed. **Permits are required at all times when parked on campus, unless parked in a visitor parking area or at a meter.** For students, two categories of permits are issued: *Resident* (for students living on-campus) and *Commuter* (for students living off-campus).

For 2015-2016, the annual rate for a resident or full-time commuter student is \$450. **Please reference [pats.uncc.edu/parking/parking-permit-information](http://pats.uncc.edu/parking/parking-permit-information) for the most current fees listing and complete permit information including where each type of permit allows you to park.** Full-time permits are valid from August 15 of one year through August 14 of the following year. Students who graduate in December may return their parking permit for a pro-rated refund.

Two-day, discount remote lot, and night permits are reduced rate options available to commuters. Night permits and two-day permits are sold by the semester. Night permits are valid only after 3 p.m. Parking before 3 p.m. requires parking and payment at the meters or in visitors’ spaces. Two-day permits are valid on specified weekdays; parking on any other day requires payment at meters or in visitors’ spaces.

The primary factor that determines permit prices is the cost of new deck construction and replacing flat lots with decks. Neither tuition dollars nor state funds are used toward parking facilities; therefore, parking fees must pay for construction and maintenance of all decks and lots and associated operations.

## Penalties for Parking Violations

Violators of University parking regulations are subject to monetary penalties ranging from \$20 to \$250, depending on the severity of the violation. Copies of parking regulations are distributed with the parking permit. Additionally, citations enforced and penalties assessed can be found online at [pats.uncc.edu](http://pats.uncc.edu). If a citation is not paid or appealed within 10 days, the penalty will be applied to the student's account with the University. Subsequent registration may be withheld for non-payment. Parking and Traffic regulations are enforced 24 hours a day, seven days a week. Currently, permits are enforced at all times, and meters are enforced from 5 a.m. on Monday through 10 p.m. on Friday.

The Parking and Transportation Services website, [pats.uncc.edu](http://pats.uncc.edu), is where you'll find the UNC Charlotte parking ordinances, all parking policy information, permit and citation FAQs and updates, and changes or disruptions to parking areas. Information about the campus shuttle and SafeRide services may also be found there.

Questions concerning parking on campus should be directed to Parking and Transportation Services Call Center at 704-687-0161, 5 a.m. on Monday through 10 p.m. on Friday, except on University Holidays or when the University is closed. Office hours are 7:30 a.m. to 5:00 p.m., Monday-Friday. Emergency situations and questions at other times should be directed to the Campus Police at 704-687-2200.



# Financial Aid

<http://finaid.uncc.edu>

UNC Charlotte administers financial aid without regard to race, color, national origin, religion, gender, sexual orientation, age, or disability.

The University offers a comprehensive program of student financial aid (scholarships, grants, loans, and part-time employment) to assist both graduate and undergraduate students in meeting educational expenses. Reasonable educational expenses include tuition and fees, room and board, books, supplies, transportation, miscellaneous personal expenses, and expenses related to maintenance of a student's dependents.



## Eligibility

The programs of student financial aid are administered according to a nationally accepted policy that the family, meaning parents (or those acting in place of parents) and/or spouse, is responsible for a student's educational expenses. Therefore, eligibility for financial aid will be determined by a comparison of a budget (educational expenses as defined above) for the period of attendance with what the student's family can reasonably be expected to contribute.

A financial aid applicant will be considered for available assistance for which he/she is eligible if the student:

- 1) Completes the application process and related forms only after thoroughly reading all instructions.
- 2) Completes the admission application process and is accepted for enrollment at UNC Charlotte.
- 3) Is working toward a degree or certificate and not simply taking courses.

## Application Process

To apply for the following programs, students must complete the Free Application for Federal Student Aid using the instructions provided online at [www.fafsa.gov](http://www.fafsa.gov). The federal school code for UNC Charlotte is 002975.

- Federal Direct Student Loan
- Federal Pell Grant\*
- Federal Perkins Loan
- Federal Supplemental Educational Opportunity Grant\*
- Federal TEACH Grant

- Federal Work Study
- UNC Need-Based Grant\*
- NC Education Lottery Scholarship\*
- University Loans

\*For undergraduate students only

## Renewal Process

Renewal of financial aid is based upon a student making satisfactory academic progress. The Free Application for Federal Student Aid is required each year that a student applies for financial aid.

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## Financial Aid Programs

### Loans

#### Federal Perkins Loan

Loans of up to \$4,000 per year are made available to students with the highest financial need who apply by the University's established priority date of March 1. The interest rate is 5.0% with repayment beginning nine months after graduation.

#### Federal Direct Loan Program

Qualified undergraduate applicants may borrow up to \$5,500 for the first year, \$6,500 for the second year, and up to \$7,500 per year for the remainder of undergraduate study. Graduate students may borrow up to \$20,500 per year. Independent students may be eligible to receive additional loan amounts. As of this printing, the maximum interest rate on new loans is currently 6.8%, and repayment begins six months after the borrower ceases to be a student.

#### Short-Term Emergency Loans

Students may borrow up to \$300 for unanticipated expenses that occur during the semester and up to \$1,000 for tuition expenses. Loans have no interest and must be repaid within 30 to 60 days. Funds for these loans are provided by private donation and are limited.

### Grants

#### Federal Pell Grants

These grants are for undergraduate students and can be as much as \$5,730, based on the student's financial need. It is an entitlement program, meaning that any student who applies and is determined to be eligible will receive funds.

#### Federal Supplemental Educational Opportunity Grants

These grants are for undergraduate students and can be as much as \$1,000. Eligibility is based on financial

need and is determined within the UNC Charlotte Office of Student Financial Aid, with priority to lowest income students who apply by the University's priority date of March 1.

#### Federal Teach Grants

These grants are for undergraduate or graduate students enrolled in certain majors leading to teaching licensure in high-need subject area at a school serving low-income students. The \$3,964 awards convert to Unsubsidized Federal Stafford Loans if the employment obligation is not met. A minimum GPA of 3.25 is required.

#### UNC Campus Scholarships

Funding for this program is provided by the General Assembly of North Carolina to each constituent institution of the UNC system. These awards are for North Carolina residents only. These limited awards are provided to students with exceptional financial need who apply by the University's priority date of March 1.

#### UNC Charlotte Grants

UNC Charlotte administers several other grant programs funded by the State of North Carolina and requires North Carolina residency for consideration. These are available to both graduate and undergraduate students who apply by the established priority date of March 1.

#### UNC Need-Based Grants

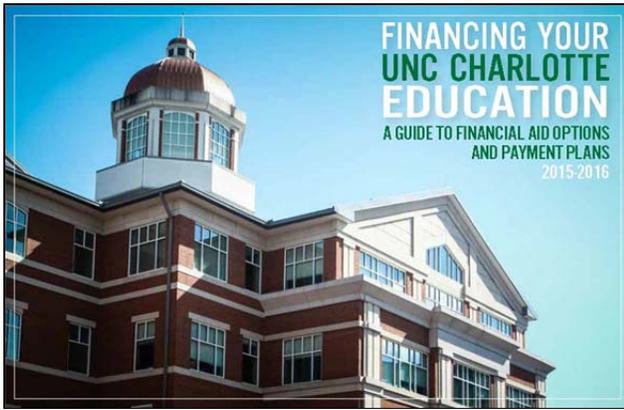
These grants are available to undergraduate NC residents and are administered by the College Foundation, Inc. in Raleigh. All who complete the Free Application for Federal Student Aid are considered for awards.

#### North Carolina Education Lottery Scholarships

These scholarships are available to undergraduate NC residents who demonstrate the most financial need as determined by the Free Application for Federal Student Aid and are administered by the College Foundation, Inc. The award amounts will vary depending on Federal Pell Grant eligibility.

### Employment

Please see the "Student Life and Resources" section of this *Catalog* for details on off-campus and on-campus employment.



## Other Assistance

### Education For The Vocationally Disabled

Vocationally disabled students are eligible for aid provided by the North Carolina State Division of Vocational Rehabilitation. This aid takes the form of services that include vocational counseling and guidance and placement. Payment of expenses such as training, medical treatment, room and board, books, fees, and tuition may be available. A vocational rehabilitation officer is available in Charlotte for interviewing applicants. Appointments may be made by contacting Vocational Rehabilitation Services at 704-568-8804. Their offices are located at 5501 Executive Center Drive in Charlotte.

### Veterans Benefits

UNC Charlotte's Veterans Student Services Office (VSSO) works with the Veterans Administration to assist in administering the various programs of benefit to veterans or eligible relatives of veterans. The VSSO Certifying Official certifies enrollment and transmits necessary credentials and information to the proper Veterans Administrative Office.

Admission to the University should be obtained before the student makes application for veteran's benefits. Applicants must be accepted into a degree program to receive benefits.

In order to be eligible for the full monthly allowance under any of the above laws, an undergraduate student must be enrolled for 12 or more semester hours and a graduate student must be enrolled for nine or more semester hours. Those enrolled on a part-time basis will be eligible for part-time compensation. Students are responsible for reporting any change in enrollment status to the VSO Certifying Official.

For details about available programs, please visit [veterans.uncc.edu](http://veterans.uncc.edu) or call the VA's toll-free number at 1-800-827-1000.

### Children of Veterans

The North Carolina Department of Veterans Affairs awards scholarships for the children of certain deceased or disabled veterans. Those awarded "full" scholarships are entitled to tuition, mandatory fees, board allowance, and room allowance; those awarded "limited" scholarships are entitled to tuition and mandatory fees. Written requests for benefits information may be directed to: VA Atlanta Regional Office, Post Office Box 100022, Decatur, GA 30031-7002 (telephone 888-442-4551).

Before the time of registration, each eligible student who wishes to enter the University should: (1) apply for admission following University procedures and (2) apply for a scholarship award to the North Carolina Department of Veterans Affairs.

### Scholarships

UNC Charlotte offers a comprehensive program of undergraduate scholarships. Some of these are awarded entirely on the basis of merit, while others consider financial need as well. The University's major awards for merit are as follows:

#### Levine Scholarships

*The Levine Scholarships* are UNC Charlotte's most prestigious scholarships for merit. Established by the generous contributions of Leon and Sandra Levine, these four-year scholarships include full tuition, fees, room & board, a grant to implement a service project of the Scholar's own design, and four summers of experiences that will develop leadership skills, social awareness, and an international perspective. The total value of this four-year package is estimated at \$90,000 per in-state student and \$137,000 per out-of-state student.



#### Reese A. Overcash Scholarships

*The Reese A. Overcash Scholarships*, another of UNC Charlotte's prestigious scholarships for merit, was established by the Overcash family in honor and memory of Reese A. Overcash, a member of the first class at the Charlotte Center of the University of North Carolina. This merit-based award seeks to attract

students who demonstrate academic excellence, leadership, and service to others.

### **C.C. Cameron Scholarships**

*The C. C. Cameron Scholarships*, established by First Union Corp., honor Mr. C. C. Cameron, who served as Chairman of First Union and as Chairman of the UNC Charlotte Board of Trustees. The purpose of the Cameron Scholars program is to bring outstanding students to UNC Charlotte. Recipients are selected on the basis of academic achievement, demonstrated leadership and service to others. Cameron Scholars are provided financial assistance and work experiences which encourage intellectual growth and stimulate the will to achieve full potential.

### **D.W. Colvard Scholarships**

*The D. W. Colvard Scholarships* honor the late Dr. Dean Wallace Colvard, first chancellor of The University of North Carolina at Charlotte, and his wife, Martha, who were instrumental in founding Friends of UNCC. Throughout the years, Dr. and Mrs. Colvard personified the quest for excellence at UNC Charlotte. The Colvard Scholarships are awarded to applicants on the basis of their achievements in high school, college aptitude tests, and their promise of making meaningful contributions to society. Their roles as leaders and their service to school and community are weighed carefully.

### **Lloyd C. and Luella L. Danielson Scholarships**

*The Lloyd C. and Luella L. Danielson Scholarships* were established by the estate of Lloyd C. and Luella Danielson to attract students of good moral character and great potential to UNC Charlotte's Mechanical Engineering majors.

### **Cameron Morrison Scholarships**

*The Cameron Morrison Scholarships*, first awarded in 1985, were established as a memorial to former Governor and Mrs. Cameron Morrison. The need-based scholarships recognize students who are public high school graduates from Mecklenburg County who seek self-improvement and demonstrate initiative and ability. Entering students ranking in the upper 10 percent of their high school graduating class are given preference.

### **Bonnie E. Cone Scholarships**

*The Bonnie E. Cone Scholarships* have been endowed by Clara McKay (Mrs. Charles H.) Stone of Charlotte and other friends of Charlotte College. The scholarships honor the late Dr. Bonnie E. Cone, founder and developer of Charlotte College, from which UNC Charlotte developed. The Bonnie E. Cone Scholarships are awarded annually to students having high moral character, proven scholastic attainment, and whose further education at the University will, in the judgment

of the scholarship committee, enhance the citizenship of the recipients and advance the service of UNC Charlotte as an institution of excellence.

### **R.L. Stowe Scholarships**

*The R. L. Stowe Scholarships* were established in 1990 to honor R. L. Stowe who opened Belmont, North Carolina's first spinning plant, the Chronicle Mill, in 1901.

### **E.K. Fretwell Scholarships**

*The E. K. Fretwell Scholarships* were established in 1990 in recognition of Dr. E. K. Fretwell Jr., chancellor of UNC Charlotte from 1979 to 1989. The primary purpose of the awards is to attract students of great potential to the University. The scholarships' founders believe that such students stimulate and challenge fellow students and faculty members. Fretwell Scholarships are awarded to graduating high school seniors based on achievements in school, college aptitude test scores, service to school and community, potential for leadership, and for making meaningful contributions to society.

### **John L. and Margaret S. Fraley Scholarships**

*The John L. and Margaret S. Fraley Scholarships* were established in honor of John L. Fraley, Sr., retired Chairman of the Board and CEO of Carolina Freight, and his wife, Margaret, as a commitment to the continued strength of corporate America. The recipients must be North Carolina residents with majors within The Belk College of Business.

### **Provost Scholarships**

*The Provost Scholarships* honor the position of the Provost of the University and are designed to attract students with great potential.

### **Fay and Cal Mitchell Scholarships**

*The Fay and Cal Mitchell Scholarships* were established in 1974 for students representing academic excellence and an SAT score of at least 1100.

### **Clara McKay Stone & Charles H. Stone Scholarships**

*The Clara McKay Stone and Charles H. Stone Scholarships* were established in 1986 and first awarded in 1987. Mr. and Mrs. Stone were early supporters and major benefactors of the University. Through their efforts the following were established: the Bonnie Cone Scholarships, the Charles H. Stone Professor of Chemistry, the Charles H. Stone Professors of American History, and the Charles H. Stone Collection of the University Library. The purpose of the Stone Scholarships is to provide scholarship assistance for worthwhile and deserving students and applicants for admission to the University who have high moral character and whose education at the University will

better enable the recipients to live worthwhile and productive lives and to further the service of the University to society. The fund provides both merit awards and awards for students who are deserving, but may not have the ability for high academic attainment, and who are in need of financial assistance in order to further their education at the University.

### J. Murrey Atkins Scholarships

The J. Murrey Atkins Scholarships were established in 1963 in memory of J. Murrey Atkins, Sr., the first Chairman of the Board of Trustees at Charlotte College, which later became UNC Charlotte. The recipient must be a North Carolina resident.

*Detailed information about the scholarships named above, including minimum qualifications, selection criteria, and the amount of the stipends, may be obtained online from the Office of Student Financial Aid Scholarship Division's website at [finaid.uncc.edu/scholarships/search](http://finaid.uncc.edu/scholarships/search).*

### Need-Based and Departmental Scholarships

Numerous other scholarships are administered by the Office of Student Financial Aid. In most cases, there is no special application for these scholarships, and all aid applicants will be considered unless the scholarship is noted as an exception. Normally, those students with demonstrated need and a grade point average of 3.5 or above will be considered for scholarships.

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# Payment

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<http://studentaccounts.uncc.edu>

The Office of Student Accounts bills students for tuition, room and board, and various other University charges. Each student receives an email around the 15th of each month at their UNC Charlotte email address informing them that their bill is available online at 49er Express. It is the student's responsibility to regularly check their UNC Charlotte email account. Failure to receive a billing statement or view their account online will not exempt students from having their registration cancelled for non-payment or from having a hold placed on their account blocking them from receiving their transcript and diploma.

Payment can be made by cash, check, online from a checking or savings account (eCheck), or by credit card (Visa, MasterCard, or American Express). All payments must be in U.S. currency. Remittance should be made payable to "UNC Charlotte" and identified with the student name and ID number.

UNC Charlotte offers a payment plan which allows

students to spread out their tuition and fees, on-campus housing and dining, and other charges billed to the student's account into three installment payments.

### Returned Check Policy

If a check is returned by the bank, a letter is sent to the maker indicating that a penalty of \$25 has been assessed and the account must be settled within 10 working days or the check will be considered to be a bad check and be processed accordingly. A hold will be placed on the student's record until the bad check is covered and the penalty is paid.

A student who pays a previous balance with a check in order to have a registration hold flag lifted will have their registration cancelled if the check is returned by the bank for any reason.

### Parent Information/Authorized Users

Authorized users are family and friends that have been given the ability to access the students account information. In compliance with the Family Educational Rights and Privacy Act of 1974 (FERPA), student financial records may not be shared with a third party without your written consent. Adding an authorized user is the student's written consent that an individual may view their account information and make payments on their behalf. Please note that authorized users DO NOT have access to a student's stored payment methods, academic records, or other personal information.

Students can add Authorized Users by logging on to 49er Express at [49erexpress.uncc.edu](http://49erexpress.uncc.edu). The student will then need to access their Student Account Information and on the Authorized Users page the student will have the ability to Add an Authorized User.

Authorized Users will receive an email informing them that they have been granted access to the student's account information. The email notification will include access information that will be used when accessing the information from the UNC Charlotte Student Account Suite at [https://ecom.uncc.edu/C21561\\_tsa/web/login.jsp](https://ecom.uncc.edu/C21561_tsa/web/login.jsp).

# Refunds

<http://studentaccounts.uncc.edu>

A student who officially withdraws (drops all courses) from the University in the Fall or Spring semester will receive a refund as follows:

TUITION AND FEES REFUNDS	
Period of Withdrawal	Percent of Tuition and Fees Refunded
Before 1st Class Day	100%
Period 1*	100% minus \$25 withdrawal fee
Period 2*	100% minus \$75 withdrawal fee
Period 3*	80%
Period 4*	75%
Period 5*	70%
Period 6*	60%
Period 7*	55%
Period 8*	50%
Period 9*	40%
After Last Period*	0%

*\*Generally, each period is one week in length; however, for specific dates of each period, please visit the Refunds Schedule located online under [finance.uncc.edu/student-accounts/refunds](http://finance.uncc.edu/student-accounts/refunds).*

## Summer School Refunds

A student who officially withdraws (drops all courses) from the University prior to the fifth class day of the Summer session will receive a 100% refund. Students who officially withdraw (drops all courses) from the University on the fifth class day of the Summer session or later will receive no refund. Please review the Refunds Schedule available online on the Student Accounts website above.

## Exceptions

Charges are refundable by administrative action on a prorated basis for the unexpired portion of the term for the following reasons: death of the student, withdrawal for adequate medical reason as certified by the University's Student Health Center or family doctor, death in the immediate family that necessitates student withdrawal, and dismissal or suspension from school. Immediate family is defined as wife, husband, parent, child, brother, sister, grandparent, and grandchildren, and includes step-, half- and in-law relationships. Appropriate documentation must be submitted to the Dean of Students.

## Appeal Procedure

Sometimes a student experiences extenuating circumstances that warrants consideration of a refund. In such situations, the student can submit an appeal for refund consideration. The *Appeal for Tuition, Housing, and Dining Refund Form* can be found online at [finance.uncc.edu/resources/forms](http://finance.uncc.edu/resources/forms). The Offices of the Registrar, Student Accounts, Housing and Residence Life, and other offices must then research the request thoroughly. In some cases, the appeal for a refund must be forwarded to the Tuition, Housing, and Dining Appeals Committee. If the request must be forwarded to the Committee, the student will be notified of the date and time of the meeting and offered the option to present the request in person. Once a decision has been made regarding the appeal, the student will be notified by mail.

The contract period for academic-year housing contracts is the entire academic year (Fall and Spring semesters). The student and/or guarantor agree to pay the full amount of charges for residential services. To cancel residential services, the student and/or guarantor must send a signed written request for cancellation of the contract to the Housing and Residence Life Office. The date of receipt of the written request for cancellation will determine, in part, the student's financial obligation to the University (please see the Housing Contract for the current academic year for specific cancellation dates). If, during the time of the Contract, the student loses the right to live in University housing by reason of disciplinary action, or breach of the Contract, no refund of housing charges for the term will be made.

The contract period for Summer School coincides with each term of the Summer School calendar; housing charges are refundable based upon the number of weeks of occupancy.

# *College of* Arts + Architecture



# College of Arts + Architecture

<http://coaa.uncc.edu>

The primary mission of the College of Arts + Architecture is to provide programs that prepare graduates for careers as architects, artists, leaders, cultural administrators, and innovators in our emerging creative economy. The college draws together in a single academic unit disciplines with common histories, methods of inquiry, and potential for contributions to the community. It serves to enhance creative, professional, and cultural production within the University of North Carolina at Charlotte and to help lead the creative economy in the region and state. The college is responsive to both cross-cultural exchange and “crossover” research and programming and seeks to provide new connections to the public realm and new opportunities for community leadership. The arts and architecture have a long history of collaboration; they require analysis and interpretation of information and media; and they demand imagination regarding the realms of communication, technology, economic change, and diversity.

The College of Arts + Architecture consists of one school and four departments, which share basic educational values and academic aspirations:

- School of Architecture
- Department of Art and Art History
- Department of Dance
- Department of Music
- Department of Theatre

## Degree Programs

Students in the College of Arts + Architecture must satisfy the requirements for the degree program(s) in which they are enrolled. Students should consult with their chosen department to make certain they fully understand all degree requirements.

### Majors

- Bachelor of Architecture
- Bachelor of Arts in Architecture
- Bachelor of Arts in Art
- Bachelor of Fine Arts in Art
- Bachelor of Arts in Art History
- Bachelor of Arts in Dance
- Bachelor of Arts in Music
- Bachelor of Music
- Bachelor of Arts in Theatre

### Minors

- Art History
- Dance
- Music
- Theatre

### Undergraduate Certificates

- Dance
- Jazz

## Foreign Language Requirements

All students who earn a degree within the College of Arts + Architecture are required to demonstrate proficiency in the language of their choice through the 1202 level. Proficiency can be demonstrated in the following ways: (1) completing the required coursework at UNC Charlotte; (2) completing three years of the same foreign language in high school through level three; (3) achieving a satisfactory score on the foreign languages placement test; (4) through approved transfer or transient credit earned at other accredited institutions; (5) a combination of the above methods (e.g.,

placing out of or earning transfer or transient credit for 1201 and completing the 1202 course, completing 1201 and placing out of or earning transfer or transient credit for 1202).

## Honors Program

With the founding of the College of Arts + Architecture, an Arts and Architecture Honors Program (AAHP) was established to provide an enriched academic and extracurricular experience for the College's most exceptional, talented and self-motivated undergraduate students. The AAHP is one of the first initiatives to formally bring students together from all units of the College in both coursework and extracurricular activities. For details, visit the College of Arts + Architecture website at [coaa.uncc.edu/academics/honors](http://coaa.uncc.edu/academics/honors).

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# School of Architecture

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<http://soa.uncc.edu>

The mission of the School of Architecture (SoA) is to advance excellence in architectural education through innovative research, teaching, and design practices. The School seeks to further the discourse between the theory and practice of architecture through the education and training of students, the work and research of the faculty, and ongoing engagement with the University, the profession, and the community. Architecture in the narrow sense includes important public monuments and, in the broader sense, the constructed environment at all scales.

To prepare undergraduate students to become future community and architectural leaders, the School of Architecture seeks to provide both a liberal and a professional education based on a holistic view of the built environment. The studio/seminar sequence in the Core Program emphasizes both writing and making to introduce students to alternative and complementary methods of investigating design problems. The professional degree path in the Advanced Program culminates in studios that emphasize self-direction and provide directed instruction on matters of importance to contemporary practice and theory, and includes courses in advanced building technology and digital practices.

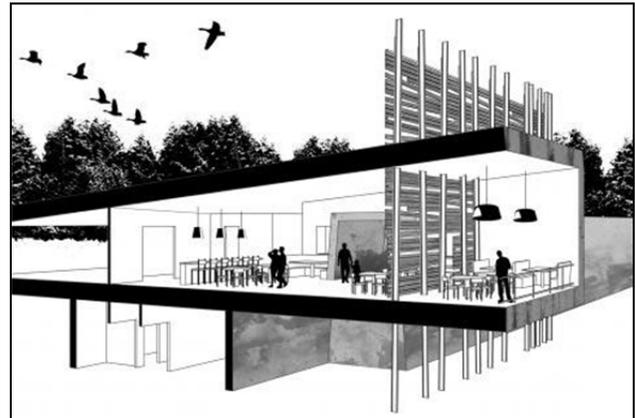
## Admission

All students must first apply to the University and submit a second online application to the School of Architecture. The SoA Undergraduate Admission Review includes an evaluation of the UNC Charlotte and SoA applications by a faculty committee, and a personal interview of selected applicants, including a presentation of samples of their creative work. All SoA admission decisions are completed by April 1 for entry beginning in the Fall semester.

Undergraduate admission to the School of Architecture is to the Four-Year Bachelor of Arts in Architecture—a pre-professional foundation degree that serves two primary academic tracks that culminate in professional accredited degrees. The first track is the “4+1” one-year Bachelor of Architecture degree (professionally accredited). The second track is the “4+2” two-year Master of Architecture degree (professionally accredited), including further options for dual-degrees and post-professional graduate studies in Urban Design, Geography, and Business/Real Estate Development. Students who do not intend to pursue an

accredited professional architecture degree may elect a modified undergraduate curriculum that allows greater academic flexibility.

Students who maintain a minimum grade point average (3.0 in architectural studies through the Fourth Year) are automatically recommended for acceptance into the undergraduate fifth-year Bachelor of Architecture program; students who maintain a minimum grade point average (3.25 in architectural studies through the Fourth Year) are automatically recommended for acceptance into the graduate Master of Architecture program. Students with an “automatic admit” to the BArch or MArch programs may enter the fall semester following completion of the B.A. degree program, or may defer one year and enroll in the subsequent academic year. Students who do not have minimum GPA for the “automatic admit” must submit a separate application for admission to the fifth-year Bachelor of Architecture or the graduate Master of Architecture program.



## Accreditation

The School of Architecture maintains accredited status through the National Architectural Accrediting Board, which reviews the curriculum, facility, faculty, and program resources annually. In addition, the NAAB conducts an intensive site visit every six years. The School has maintained full accreditation standards as prescribed by this board and includes the following required statement:

*"In the United States, most registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit professional degree programs in architecture offered by institutions with U.S. regional accreditation, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be*

granted an eight-year, three-year, or two-year term of accreditation, depending on the extent of its conformance with established educational standards.

*Doctor of Architecture and Master of Architecture degree programs may require a preprofessional undergraduate degree in architecture for admission. However, the preprofessional degree is not, by itself, recognized as an accredited degree."*

University of North Carolina at Charlotte, School of Architecture, offers the following NAAB-accredited degree programs:

- B. Arch. (158 undergraduate credits)
- M. Arch. (preprofessional degree + 60 graduate credits)
- M. Arch. (non-preprofessional degree + 96 credits)

Next accreditation visit for all programs: 2016.

## Bachelor of Arts in Architecture

The undergraduate Bachelor of Arts in Architecture is a 4-year pre-professional foundation degree, which requires 128 credit hours. Students who wish to become registered architects must also earn a professional NAAB-accredited degree—either a 1-year Bachelor of Architecture (128+30 credit hours) or a 2-year Master of Architecture (128+60 credit hours). Information on the Master of Architecture degree program may be found in *UNC Charlotte Graduate Catalog*.



## Degree Requirements

### Core Program

All undergraduate students in the School of Architecture complete a three-year core sequence of courses designed to provide a solid understanding of fundamental issues, knowledge, and skills related to architecture. These courses include a series of coordinated design studios, skill-building seminars, a four-semester sequence of architectural history (three survey courses and one history topic elective), and four courses in building technology (one course in Architectural Materials, two courses in Structures, and

one course in Environmental Systems Principles). Students who do not intend to pursue an accredited professional degree (the B.Arch. or M.Arch.) may complete only the Core Program and earn a non-pre-professional version of the Bachelor of Arts in Architecture. This alternative allows greater academic flexibility for students to augment their architectural studies with coursework from other University departments, allowing double major or minor in other disciplines, or to prepare for graduate studies in related fields (such as planning, urban design, landscape architecture, or architectural history).

- ARCH 1101 Architecture Design Studio I (5)
- ARCH 1102 Architecture Design Studio II (5)
- ARCH 1601 Recording Observations (2)
- ARCH 1602 Components of Form (2)
- ARCH 2101 Architecture Design Studio III (3)
- ARCH 2102 Architecture Design Studio IV (5)
- ARCH 3101 Architecture Design Studio V (5)
- ARCH 3102 Architecture Design Studio VI (3)
- ARCH 3601 Writing Architecture (W) (3)
- ARCH 4050 Architectural Elective (3)
- ARCH 4201 Architectural History I (3)
- ARCH 4202 Architectural History II (3)
- ARCH 4203 Architectural History III (3)
- ARCH 4204 Architectural History Topic (3) (W)
- ARCH 4301 Material and Assembly Principles (5)
- ARCH 4302 Environmental Systems Principles (3)
- ARCH 4303 Structural Principles (3)
- ARCH 4604 Computational Methods (3)
- Foreign Language proficiency at level 1202 or higher (4-8)

### Advanced Program

Students who do not intend to pursue an accredited professional degree (the B.Arch. or M.Arch.) may complete the Advanced Program and earn a pre-professional version of the Bachelor of Arts in Architecture. This presents opportunities for greater depth of inquiry, breadth of understanding and synthesis through advanced architectural design and electives. In mostly, but not entirely, concentrated in the Fourth Year of study, the Advanced Program includes an intensive building design studio in which students learn advanced computing skills, various topical design studios in which faculty steer focused research agendas, as well as additional courses in technology, history, and other topics that engage contemporary architecture. The following courses are not required for the B.A. in Architecture degree, but are required for subsequent accredited degrees, such as the Bachelor of Architecture (5<sup>th</sup> year) or the Master of Architecture at UNC Charlotte:

- ARCH 4050 Architecture Elective - Topics (3)
- ARCH 4050 Architecture Elective - Topics (3)
- ARCH 4101 Architecture Studio VII: Advanced

Building Design (5)  
ARCH 4102 Architecture Studio VIII: Topical (5)  
ARCH 4304 Structural Systems (3)

## Degree Total = 128 Credit Hours

### Grade Requirements

One grade of D in any studio is permissible. A second grade of D or F in a subsequent studio requires repeating the course. Successive D and/or F grades in a studio that is taken for a second time results in suspension from the Architecture program.

To graduate with a *Bachelor of Arts in Architecture* degree, an overall GPA of 2.0 must be achieved in all courses offered by the School.

A student may not repeat an ARCH course more than once. Students are permitted one opportunity to repeat any architecture course. Earning a grade of F in the same course twice results in suspension from the Architecture program.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Architecture

### (Professional Accredited Degree)

Students who complete the pre-professional four-year Bachelor of Arts in Architecture, including all requirements outlined above for both the Core and Advanced Programs, are eligible to apply for the fifth-year Bachelor of Architecture degree program. The Bachelor of Architecture program offers students who have already completed a bachelor degree an opportunity to continue their architectural education within a vibrant urban community that includes civic and cultural institutions, residential fabrics, social infrastructures, international businesses, and a broad collection of architectural practices, consultant firms, and other design-related resources. The location of the program in the Center City Building embeds students and faculty within the lifeblood of the profession, and the program is structured in order to take advantage of

the personal and material resources of the city. The serendipity of the urban realm and the ability to witness the workings of the profession *in situ* drive the objective of the program to produce civic-minded and technologically-adept young professionals. Students who complete the Bachelor of Architecture program receive the Bachelor of Architecture degree, which is the professional undergraduate degree accredited by the National Architectural Accreditation Board (NAAB). This degree qualifies graduates to complete their professional internship and take the Architecture Registration Exam and, in turn, become a licensed Architect. The mechanism of licensure is the Internship Development Program (IDP) run by the National Council of Architectural Registration Boards (NCARB).

### Degree Requirements

The two-semester curriculum of the Bachelor of Architecture program consists of 30 credit hours, in addition to the 128 credit hours for the B.A. in Architecture, for a total of 158 credit hours. The program includes the four-year Bachelor of Arts in Architecture Advanced Program curriculum outlined above, plus an additional year with the following courses:

#### Major Courses (30 credit hours)

- ARCH 4050 Architecture Elective (3)
- ARCH 4050 Architecture Elective (3)
- ARCH 4103 Architecture Studio IX: Integrated Building Design (6)
- ARCH 4104 Architecture Studio X: Design Inquiry Studio (6)
- ARCH 4205 Architectural History Elective (3)
- ARCH 4206 Professional Practice (3)
- ARCH 4305 Building Systems Integration (3)
- ARCH 4607 Urban Seminar (3)

Each semester of the program is designed as a “package” of courses that integrates NAAB requirements into a holistic vision of the profession, which includes a synthesis of technological and social concerns, as well as the production of compelling analytical visualizations of architecture and its context at multiple scales. The studio sequence is designed to initiate students on a career path of design-as-research. In ARCH 4103, students complete a special requirement of the accredited professional degree in architecture, which is the demonstration of the ability to execute an Integrated Design Project. Instructors provide section-specific sites, program guidelines, and architectural themes, and students work in pairs to complete a fully resolved building design that addresses contemporary matters of architecture and the city, utilizing the most current computational methods. In ARCH 4104, students delve deeply into individually-defined investigations of specific themes of

contemporary architecture. Students take advantage of the proximity of the program to the professional community of Charlotte in order to develop relationships that have both short-term (i.e., project-related) and long-term (i.e., career-related) benefits.

The School also offers a fifth-year Bachelor of Architecture program for students who have a four-year architectural or environmental design degree from another NAAB accredited institution. Following an assessment of curriculum for equivalence with the B.A. in Architecture Advanced Program, students are required to complete a minimum of 30 credit hours, including 12 hours of architectural studio and 18 hours of other architectural courses. Students entering the fifth-year Bachelor of Architecture program from other architecture programs who have curriculum deficiencies will be required to complete additional coursework and credit hours. No transfer credit is accepted for this program.

## Degree Total = 158 Credit Hours

### Grade Requirements

A grade of C is the minimum passing grade for both Fifth Year studios, ARCH 4103 and ARCH 4104. A grade of D in ARCH 4103 prohibits a student from entering ARCH 4104; a grade of D in ARCH 4104 prohibits a student from graduating. Courses for which a grade of D is received must be taken again; any student receiving less than a grade of C when repeating a studio course will be suspended from enrollment in the School of Architecture.

A grade of F in either ARCH 4103 or ARCH 4104 requires a student to reapply to the Fifth Year program.

To graduate with a Bachelor of Architecture degree, all students must maintain an overall GPA of 2.5 in Fifth-Year coursework offered by the School.

Students who are suspended from the University due to deficiencies in their academic performance will be suspended from the Architecture program. If a student is readmitted to the University, they are not automatically readmitted into the Architecture program; they must appeal to the School of Architecture for reinstatement. Students who are readmitted to the University under the Forgiveness Policy must also appeal to the School of Architecture for reinstatement into the architecture program.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Areas of Academic Focus

The School of Architecture faculty offer expertise and instruction in the following areas:

### Architectural Design Studios and Seminars

Studios and seminars provide both analytical and synthetic educational experiences along with the opportunity to pursue intense study of physical-environmental subject(s). These courses link humanistic, physical phenomena, social-psychological, behavioral, perceptual, and aesthetic studies.

### Architectural History Courses

These courses provide an understanding of the relationships between culture and its physical architectural manifestations from ancient to contemporary times.

### Building Technology Courses

These courses provide a quantitative and qualitative understanding of building materials, structural theory and design, environmental systems issues and principles, and building systems integration.

### Computation Courses

These courses provide practical and theoretical training on matters of basic and advanced computational practices, including instruction in scripting and digital fabrication.



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## Architectural Electives and Opportunities

Elective courses provide opportunities for topical study of issues, both current and historic to architectural practices: theoretical concerns, urban design, landscape, representation, building technology, digital practice and fabrication, environmental issues,

community practice, and constructional/making concerns. Many electives are organized around the following four themes or concentrations:

### 1) Architectural Design, Theory, & Practice

This concentration focuses on a sophisticated and detailed study of building and site design arising from the re-presentational methods intrinsic to architecture. The areas of focus include: graphic description, historical and/or theoretical inquiries, as well as digital design and fabrication. This concentration includes both investigation and criticism of contemporary practice and practitioners as it pertains to the understanding, design, and making of architecture.

### 2) Urbanism

This concentration focuses on the critical role of architecture in the city -- the processes and specific intents of physical interventions in urban landscapes and infrastructures. Through the design of groups of buildings as well as larger scale urban areas, issues of policy, politics, finance, planning, place, and culture are introduced as part of the essential conception and history of the city fabric.

### 3) Architectural Technology

This concentration focuses on emerging issues of sustainable design and the development of innovative building envelopes and systems that utilize both new and traditional materials, technology, and construction methods. Seeking to explore the historical as well as contemporary realms of thermal, tactile and visual issues of architectural technology, students address appropriate material selection, methods of daylighting, and passive and active systems for heating and cooling with consideration of both qualitative and quantitative outcomes.

### 4) Digital Design, Fabrication, and Visualization

This concentration focuses on computation as it affects materiality, process, and interaction. Work in this concentration focuses on the responsible material constraints of digital manufacturing techniques, the ways in which our methodologies are affected by computation, and the ways in which digital technology is changing the expectations for interaction in our designed spaces and urban conditions.

## Independent Studies

When appropriate, a student may earn credit by pursuing a self-directed, faculty-approved study of a particular, significant architectural topic or subject.

## Research Studies

A student may earn credit through participation in

directed faculty research projects.



## General University Requirements and Directed Electives

Courses to meet the University's General Education requirements and elective studies are incorporated in the curriculum structure.

## Foreign Language Requirement

All students who earn a degree in the School of Architecture are required to be proficient in the language of their choice through the 1202 level.

Proficiency can be demonstrated in the following ways: (1) Completing the required coursework (ARCH 1201 and 1202; 8 credit hours each) at UNC Charlotte; (2) Completing three years of the same language in high school through Level Three; (3) Achieving a satisfactory score on the foreign languages placement test; (4) Approved transfer or transient credit earned at other accredited institutions; or (5) A combination of the above methods (e.g., placing out of or earning transfer or transient credit for 1201 and completing the 1202 course, completing 1201 and placing out of or earning transfer or transient credit for 1202).

## Education Abroad Programs

The School conducts international field-study summer programs in a range of countries including, but not limited to, Italy, Spain, Portugal, Switzerland, Eastern Europe, Finland, and China. In addition, exchange arrangements exist through the Office for International Programs for students to study architecture for one or two semesters at: University of Copenhagen (Denmark); Kingston University (London, England); Lund Institute of Technology, (Lunds, Sweden); University of Technology, (Delft, Netherlands); Tongji University, (Shanghai, China), The University of Applied Science, (Aachen, Germany); Royal Danish Academy of Fine Arts, (Copenhagen, Denmark); and

the Henry van de Velde Institute (Antwerp, Belgium).

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## Advising

The advising program consists of two tiers: Staff Academic Advisor (Core Program advising) and Associate Director (Advanced Program advising).

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# Department of Art & Art History

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<http://art.uncc.edu>

## Degree Programs

### Majors

The Department of Art and Art History offers a diverse and comprehensive program leading to a Bachelor of Fine Arts in Art (a professional degree with concentrations in Studio Art or Art Education), a Bachelor of Arts (a liberal arts degree in Studio Art), and a Bachelor of Arts in Art History. Students pursuing the B.F.A. in Art are required to select a studio concentration in ceramics, digital media, fibers, graphic design, illustration, painting, photography, print media, or sculpture; or an Art Education concentration leading to a K-12 Licensure.



### Minors

Students may earn a Minor in Art History.

### Course Requirements

The degree programs are structured upon the following premises:

- Students need a basic level of skill and aesthetic sensitivity in a variety of studio disciplines.
- Students need an awareness of the common core of historical and theoretical knowledge in the arts.
- Students need in-depth knowledge to critically synthesize formal and conceptual aspects of work in a specific area of study.

Studio Art courses are open to Art majors only. Most Art History courses are open to any major. Students must receive a grade of C or above in all courses applied to the major or minor (a grade of B or above is required in ARTE 2100 for students in the Concentration in Art Education). Students cannot advance to the next course in a sequence until a grade of C or above is earned in prerequisite courses (a grade of B or above is required in ARTE 2100 for students in the Concentration in Art Education). Students seeking admission to Art or Art History majors must have a cumulative GPA of 2.5. A GPA of 2.5 (in major courses only) is required for graduation. Students seeking admission to and graduation from the Concentration in Art Education have additional requirements (see the section on the Concentration in

Art Education below).

Students intending to earn either the B.F.A. in Studio Art/Art Education or the B.A. in Art should take three ARTB 120x courses, one ARTH course (ARTH 1211, 1212, or 2110), and UWRT 1101 in the first semester of their Freshman year. All of the General Education courses should be organized around the Art requirements. It is usually not possible to graduate in four years without taking this number of Art courses right away. Prerequisite sequencing dictates the time to graduation, and all students should become thoroughly familiar with course descriptions in the *UNC Charlotte Undergraduate Catalog*.

All transfer courses are automatically reviewed by the Office of Undergraduate Admissions. Students seeking to appeal the official transfer designations for ARTx courses must provide the Department Academic Advisor with copies of the official course descriptions and a syllabus for each course requested for consideration. Portfolios of creative work from each of the individual studio courses may also be required.

## Academic Advising

All Art and Art History majors are required to meet with the Academic Advisor in the Department of Art and Art History each semester. Students will not be able to register for any course at UNC Charlotte without attending the mandatory advising meetings. The Academic Advisor is available year-round.

Career mentoring in studio, art history, and art education is offered by individual faculty members who are active professionals in those areas of study. Contact is best done by email or telephone. Most professors are available for appointments from the first day of classes until the last day of classes each Fall and Spring semester. Requirements for degrees and minors, as well as 4-year B.F.A. calendars are available in the department office and online at [art.uncc.edu](http://art.uncc.edu).



Students seeking to confirm that General Education graduation requirements are met should use the automated CAPP Degree Evaluation system online in 49er Express ([49erexpress.uncc.edu](http://49erexpress.uncc.edu)). Those seeking confirmation of Art requirements must contact the Academic Advisor.

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## Bachelor of Arts in Art

The Bachelor of Arts (B.A.) in Art requires 120 credit hours and is recommended for those interested in a double major, or for those intending to pursue a career in a discipline other than art. It is not intended for students interested in an in-depth study in a single studio area.

### Additional Admission Requirements

A cumulative GPA of 2.5 is required for admission. All studio students must apply for Art major status by submitting a portfolio of work to the department. Portfolios are reviewed once per year in the Spring. Students cannot take any studio course without having Art major status. All studio students, even those seeking the B.F.A. degree, begin in the B.A. program.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (39 credit hours)

##### Basic Foundation Studios (12 credit hours)

- ARTB 1201 2D Design (3)
- ARTB 1202 3D Design (3)
- ARTB 1203 Drawing 1 (3)
- ARTB 1206 Conceptual Practices (3)

##### Elective Studio Courses (15 credit hours)

Select five of the following. At least 9 credits must be taken at UNC Charlotte.

- ARTx any 2000-level 2D studio course\*
- ARTx any 2000-level 3D studio course\*\*
- ARTx any 2000- or 3000-level studio course
- ARTx any 2000- or 3000-level studio course
- ARTx any 2000- or 3000-level studio course

\*Options for 2000-Level 2D Courses:

- ARTB 1205 Figure Drawing (3)
- ARTD 2139 Drawing 2 (3)
- ARTG 2180 Graphic Design Methods (3)
- ARTG 2181 Graphic Design 1 (3)
- ARTL 2186 Illustration 1 (3)
- ARTM 2105 Digital Media 1 (3)
- ARTP 2131 Painting 1 (3)
- ARTR 2161 Print Media 1: Silkscreen, Relief and Mixed Media (3)

ARTR 2162 *Print Media 2: Intaglio Methods* (3)  
ARTT 2191 *Photo Media 1* (3)

**\*\*Options for 2000-Level 3D Courses:**

ARTC 2171 *Ceramic Handbuilding* (3)  
ARTC 2172 *Ceramic Wheel 1* (3)  
ARTF 2151 *Fibers 1* (3)  
ARTF 2257 *Mixed Media Books Arts and Papermaking* (3)  
ARTZ 2104 *Installation Art 1* (3)  
ARTZ 2141 *Sculpture 1* (3)  
ARTZ 2306 *Introduction to 3D Modeling and Digital Fabrication* (3)

Students intending to pursue the B.F.A. program should complete the following courses in the anticipated area of studio concentration. These courses meet the B.A. Elective Studio requirements and will be required for the B.F.A. degree in the selected studio concentration. Students pursuing the Concentration in Art Education will have different requirements and must attend an Art Education Informational Session during their first semester at UNC Charlotte for specific information about the program and the calendar of courses.

**Ceramics (ARTC)**

Option 1:

ARTC 2171 *Ceramics Handbuilding* (3)  
ARTC 3171 *Ceramic Sculpture* (3)  
ARTC 3273 *Ceramic Studio 3* (3)

Option 2:

ARTC 2172 *Ceramics Wheel 1* (3)  
ARTC 3172 *Ceramics Wheel 2* (3)  
ARTC 3273 *Ceramic Studio 3* (3)

**Digital Media (ARTM)**

ARTM 2101 *Digital Media* (3)  
ARTM 3103 *Digital Media 2* (3)  
ARTM 3105 *Video Art* (3)

**Fibers (ARTF)**

ARTF 2151 *Fibers 1*  
ARTF 3352 *Fibers: Surface Design 1* (3)  
ARTF 3353 *Fibers: Constructed Textiles 1* (3)

**Graphic Design (ARTG)**

ARTG 2180 *Graphic Design Methods* (3)  
ARTG 2181 *Graphic Design 1* (3)  
ARTG 3183 *Graphic Design 2* (3)

**Illustration (ARTL)**

ARTL 2186 *Illustration 1* (3)  
ARTL 3186 *Illustration Media and Methods* (3)  
ARTB 1205 *Figure Drawing I* (3)

**Painting (ARTP)**

ARTP 2131 *Painting 1* (3)  
ARTP 3161 *Mixed Media: Works on Paper* (3)  
ARTP 3131 *Abstract Painting* (3)

**Photo (ARTT)**

ARTT 2191 *Photographic Media 1* (3)  
ARTT 3191 *Camera and Light* (3)  
ARTT 3190 *Digital Photography* (3)

**Print Media (ARTR)**

ARTR 2161 *Print Media 1: Silkscreen, Relief, and Mixed Media* (3)  
ARTR 2162 *Print Media 2: Intaglio Methods* (3)  
ARTR 3162 *Print Media 3: Lithography, Digital and Mixed Media* (3)

**Sculpture (ARTZ)**

ARTZ 2141 *Sculpture 1: Why Sculpture* (3)  
ARTZ 3142 *Sculpture 2: Object vs. Event* (3)  
ARTZ 3243 *Sculpture 3: Content* (3)

**Art History Courses (9 credit hours)**

ARTH 1211 *Art History Survey 1* (3)  
ARTH 1212 *Art History Survey 2* (3)  
ARTH 2110 *Contemporary Art History* (3)

**Senior Seminar (3 credit hours)**

ARTA 4600 *Senior Seminar* (3) (O, W)\*

*\*This Senior level course should be taken with the last Elective Studio during a student's last one or two semesters of study at UNC Charlotte. Senior Seminar fulfills one of the two Writing Intensive (W) requirements in General Education, as well as the Oral Communication (O) requirement.*

**Unrestricted Elective Courses (36-44 credit hours)**

As needed.

**Degree Total = 120 Credit Hours**

**Grade Requirement**

A GPA of 2.5 in the major is required for graduation.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Fine Arts in Art with Concentration in Studio Art

The Bachelor of Fine Arts (B.F.A.) in Art with a Concentration in Studio Art provides in-depth study in one or more concentration areas. Because it requires 80 credit hours of courses in this department, and

because many of the concentration courses are sequential, it is important to begin taking three studio art courses and one art history course during the first semester of study. Students should not complete the General Education courses before beginning the courses in the major. This will delay time to graduation. Four year schedules differ for each concentration and are available online or in the departmental office.

### Additional Admission Requirements

A cumulative GPA of 2.5 is required for admission. Art majors in the B.A. studio program apply to the B.F.A. degree program by taking and passing a 1-credit course (ARTA 3201) during their sophomore year. During the class, students assemble another portfolio of work and written documentation, which they later submit to the BFA Review Committees. Students may not take advanced studio courses without having passed this course and gained acceptance into the B.F.A. program.



### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (80 credit hours)

##### Basic Foundation Studios (15 credit hours)

ARTB 1201 2D Design  
 ARTB 1203 Drawing 1  
 ARTB 1202 3D Design  
 ARTB 1205 Figure Drawing  
 ARTB 1206 Conceptual Practices

##### Introductory Studios (15 credit hours)

These studios consist of the introductory 2000-level courses in each concentration area. Students must take a total of 5 courses. Two of the courses must be from a two-dimensional area and two must be from a three-dimensional area. The fifth course may be from either area, depending on the student's discipline. Certain courses are mandatory for each concentration, and each concentration requires different courses. See below for details.

All 2000-level courses have prerequisites of certain Basic Foundation Studios. The 2000-level courses are prerequisites for 3000- and 4000-level courses. Make sure to check the prerequisites and course descriptions for each course.

### Concentrations

Students may choose from the following concentrations:

- ARTC Ceramics
- ART\_ Cross Disciplinary (*pre-approval required*)
- ARTM Digital Media
- ARTF Fibers
- ARTG Graphic Design
- ARTL Illustration
- ARTP Painting
- ARTI Photography
- ARTR Print Media
- ARTZ Sculpture

Following are the specific introductory studio requirements for each concentration area.

#### Ceramics

- 1) ARTC 2171 Ceramic Handbuilding *and*
- 2) ARTC 2172 Ceramic Wheel *and*
- 3) ARTZ 2141 Sculpture 1 *and*
- 4) 1 course from any of these areas: ARTD, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT *and*
- 5) 1 more course from a different area: ARTD, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT

#### Cross Disciplinary

See Academic Advisor.

#### Digital Media

- 1) ARTM 2105 Digital Media *and*
- 2) Any ARTC, ARTZ, or ARTF course at the 2000-level *and*
- 3) 1 course from ARTC or ARTF *and*
- 4) 1 more course from any of these areas: ARTD, ARTG, ARTL, ARTP, ARTR, ARTT *and*
- 5) 1 more course from any of these areas: ARTC, ARTD, ARTF, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT, ARTZ

#### Fibers

- 1) ARTF 2151 Fibers 1 *and*
- 2) ARTF 2257 Mixed Media Book Arts and Papermaking *and*
- 3) ARTZ 2104 Installation Art 1 *and*
- 4) 1 more course from any of these areas: ARTD, ARTG, ARTL, ARTM, , ARTP, ARTR, ARTT *and*
- 5) 1 more course from any of these areas: ARTD, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT

### **Graphic Design**

- 1) ARTG 2180 Graphic Design Methods *and*
- 2) ARTG 2181 Graphic Design 1 *and*
- 3) ARTM 2105 Digital Media *and*
- 4) 1 course from any of these areas: ARTC, ARTF, ARTZ *and*
- 5) 1 more course from a different area: ARTC, ARTF, ARTZ

### **Illustration**

- 1) ARTL 2186 Illustration 1 *and*
- 2) ARTD 2139 Drawing 2 *and*
- 3) 1 course from any of these areas: ARTC, ARTF, ARTZ *and*
- 4) 1 more course from any of these areas: ARTC, ARTF, ARTZ *and*
- 5) 1 more course from any of these areas: ARTC, ARTD, ARTF, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT, ARTZ

### **Painting**

- 1) ARTP 2131 Painting 1 *and*
- 2) ARTD 2139 Drawing 2 *and*
- 3) ARTR 2161 Print Media: Serigraphy, Relief, Mixed Media *and*
- 4) 1 course from any of these areas: ARTC, ARTF, ARTZ *and*
- 5) 1 more course from any of these areas: ARTC, ARTF, ARTZ

### **Photography**

- 1) ARTT 2191 Photo Media 1 *and*
- 2) ARTM 2105 Digital Media *and*
- 3) 1 other course from any of these areas: ARTC, ARTF, ARTZ *and*
- 4) 1 other course from any of these areas: ARTC, ARTF, ARTZ *and*
- 5) 1 more course from any of these areas: ARTC, ARTD, ARTF, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT, ARTZ

### **Print Media**

- 1) ARTR 2161 Print Media 1: Silkscreen, Relief, Mixed Media *and*
- 2) ARTR 2162 Print Media 2: Intaglio Methods *and*
- 3) ARTM 2105 Digital Media *and*
- 4) 1 course from any of these areas: ARTC, ARTF, ARTZ *and*
- 5) 1 more course from any of these areas: ARTC, ARTF, ARTZ

### **Sculpture**

- 1) ARTZ 2104 Installation 1 *and*
- 2) ARTZ 2141 Sculpture 1: Why Sculpture *and*
- 3) ARTM 2105 Digital Media *and*
- 4) 1 more course from any of these areas: ARTD, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT *and*

- 5) 1 more course from any of these areas: ARTC, ARTD, ARTF, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT

### **Restricted Elective Course (3 credit hours)**

Students should take any type of course in the department (except ARTE 2121). Students may want to take an additional Introductory Studio. If an Art History course is selected, students will automatically earn a Minor in Art History, but they will need to submit a *Change of Major/Minor* form to the Office of the Registrar in order to reflect this on their official record.

### **Advanced Studio Courses (6 credit hours)**

Two studio courses are required at the 3000- or 4000-level. These courses have prerequisites at the 2000-level (or above). In addition to regular studio courses from any concentration area, you may choose a studio internship or independent study. Art History and Art Education courses do not count towards these requirements.



### **Concentration Studio Courses (21 credit hours)**

Students must complete 7 advanced courses in their chosen concentration. They are specified below. Many of these courses are sequential and require BFA status as one of the prerequisites. Students will need to register for the BFA Portfolio Review course (ARTA 3201) simultaneously with the first 3000 level course in the concentration. Students should take the BFA Senior Exhibit course (ARTA 4601) and Senior Seminar simultaneously with the last Projects course in their concentration. The following are the requirements for each concentration area:

#### **Ceramics**

- 1) ARTP 3131 Abstract Painting *or* ARTP 3161 Mixed Media *or* ARTZ 3142 Sculpture 2 *or* ARTF 3353 Fibers: Constructed Textiles 1
- 2) ARTC 3171 Ceramic Sculpture *or* ARTC 3172 Ceramics Wheel 2
- 3) ARTC 3273 Ceramics 3
- 4) ARTC 3274 Ceramics 4
- 5) ARTC 4175 Ceramics 5
- 6) ARTC 4971 Ceramics Projects 1

- 7) ARTC 4972 Ceramics Projects 2

### **Digital Media**

- 1) Any Art Studio course at the 3000- or 4000-level
- 2) ARTM 3101 Digital Art 2
- 3) ARTM 3103 Animation and Interactivity
- 4) ARTM 3105 Video Art
- 5) ARTM 3205 Interactive Art & Design
- 6) ARTM 4901 Digital Projects 1
- 7) ARTM 4902 Digital Projects 2

### **Fibers**

- 1) ARTZ 3104 Installation Art 2
- 2) ARTF 3352 Fibers: Surface Design 1
- 3) ARTF 3353 Fibers: Constructed Textiles 1
- 4) ARTF 3354 Fibers: Surface Design 2
- 5) ARTF 3355 Fibers: Constructed Textiles 2
- 6) ARTF 4951 Fibers Projects 1
- 7) ARTF 4952 Fibers Projects 2

### **Graphic Design**

- 1) ARTM 3103 Animation & Interactivity
- 2) ARTM 3205 Interactive Art and Design
- 3) ARTG 3183 Graphic Design 2
- 4) ARTG 3184 Typography
- 5) ARTG 4180 Communications Design
- 6) ARTG 4181 Print Production
- 7) ARTG 4982 Graphic Design Projects

### **Illustration**

- 1) ARTD 3134 Figure and Anatomy
- 2) ARTL 3086 Topics in Illustration or ARTP 3161 Mixed Media
- 3) ARTL 3186 Illustration: Media/Method
- 4) ARTL 3187 Children's Book Illustration
- 5) ARTL 3188 The Figure in Illustration
- 6) ARTL 3286 Illustration Sequence/Story
- 7) ARTL 4981 Illustration Projects

### **Painting**

- 1) ARTH 3114 Art History Methods **or** ARTH 3100 Field Study in Visual Arts **or** ARTA 3801 Visual Arts Workshop **or** ARTR 3162 Print Media 3 **or** ARTD 3134 Figure & Anatomy **or** ARTT 3190 Digital Photography **or** ARTF 3353 Fibers: Constructed Textiles 1
- 2) ARTP 3131 Abstract Painting
- 3) ARTP 3132 Figure in Painting
- 4) ARTP 3161 Mixed Media
- 5) ARTP 4931 Painting Projects 1
- 6) ARTP 4932 Painting Projects 2
- 7) ARTP 4933 Painting Projects 3

### **Photography**

- 1) ARTM 3105 Video Art **or** ARTM 3205 Interactive Art & Design **or** ARTM 3103 Animation & Interactivity
- 2) ARTT 3190 Digital Photography

- 3) ARTT 3191 Camera and Light
- 4) ARTT 3391 Black and White Printing
- 5) ARTT 4291 Advanced Photo Media
- 6) ARTT 4991 Photography Projects 1
- 7) ARTT 4992 Photography Projects 2

### **Print Media**

- 1) Select one of the following: ARTM 3105 Video Art **or** ARTT 3190 Digital Photography **or** ARTP 3131 Abstract Painting **or** ARTF 3352 Fibers: Surface Design 1 **or** ARTF 3353 Fibers: Constructed Textiles 1
- 2) Select one of the following: ARTM 3105 Video Art **or** ARTT 3190 Digital Photography **or** ARTP 3131 Abstract Painting **or** ARTF 3352 Fibers: Surface Design 1 **or** ARTF 3353 Fibers: Constructed Textiles 1
- 3) ARTR 3162 Print Media 3
- 4) ARTR 3263 Print Media 4
- 5) ARTR 4961 Print Media Projects 1
- 6) ARTR 4962 Print Media Projects 2
- 7) ARTR 4963 Print Media Projects 3

### **Sculpture**

- 1) ARTZ 3104 Installation Art 2
- 2) ARTZ 3142 Sculpture 2
- 3) ARTZ 3243 Sculpture 3
- 4) ARTZ 3344 Sculpture 4
- 5) ARTZ 4941 Sculpture Projects 1
- 6) ARTZ 4942 Sculpture Projects 2
- 7) ARTZ 4943 Sculpture Projects 3

### **Art History Courses (15 credit hours)**

- ARTH 1211 Art History Survey 1  
ARTH 1212 Art History Survey 2  
ARTH 2110 Contemporary Art History  
ARTH xxxx Any Art History course (ARTH 3393 for photography concentration)  
ARTH xxxx Any Art History course

### **Senior Seminar (3 credit hours)**

- ARTA 4600 Senior Seminar (3) (O, W)

Students must have Senior status and be in the last one or two semesters in the degree program in order to register for ARTA 4600. It should be taken with the last studio Projects course in the student's concentration.

### **B.F.A. Portfolio Review (1 credit hour)**

- ARTA 3201 B.F.A. Portfolio Review (1)

Students should register for ARTA 3201 during the semester they take the first 3000-level course in their concentration. Students will prepare a portfolio of images and a written statement related to their concentration. Students will not be able to continue with advanced courses unless they pass this course. If

a student does not pass this course, s/he will not gain admission to the B.F.A. degree track. The course may be repeated once if the student would like to re-submit a portfolio to the same concentration. If the student does not pass a second time, s/he may stay with the B.A. in Art degree status. The student also has the option of taking the course again but must submit a different portfolio to a new concentration.

### **B.F.A. Senior Exhibit (1 credit hour)**

ARTA 4601 B.F.A. Senior Exhibit (1)

Students should register for ARTA 4601 at the same time that they take the last Projects course in their concentration. All Seniors in the B.F.A. degree program must present a public exhibition of their work.

### **Unrestricted Elective Courses (0-3 credit hours)**

As needed.

### **Grade Requirement**

A GPA of 2.5 in the major is required for graduation.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## **Bachelor of Fine Arts in Art with Concentration in Art Education**

The Department of Art and Art History offers a program of Art and Education courses to prepare students for K-12 Art Education licensure in North Carolina. Students should contact the Arts Education Specialist as soon as possible for advising. A decision later than freshman year to seek licensure may result in a delayed graduation date. Forms for the degree requirements and licensure requirements are available in the department office or online at [art.uncc.edu](http://art.uncc.edu).

### **Additional Admission Requirements**

Students interested in pursuing the B.F.A. in Art with a

concentration in Art Education must submit an entrance Portfolio the Spring before their anticipated start date in Fall. The Portfolio consists of original works of art created by the student. Specific guidelines

about presentation, selection, and submission can be found online at [art.uncc.edu](http://art.uncc.edu).

Once a student passes their entrance Portfolio, they begin coursework in the B.A. in Art. A second Portfolio is required during the sophomore year to transition into the B.F.A. and the Application to Teacher Education is submitted to the College of Education.

After successfully completing both requirements, the concentration in Art Education is added and the student progresses with upper-level coursework.



*The Human Condition*  
by René Magritte

After successfully completing both requirements, the concentration in Art Education is added and the student progresses with upper-level coursework.

After successfully completing both requirements, the concentration in Art Education is added and the student progresses with upper-level coursework.

### **Degree Requirements**

#### **General Education Courses (34 credit hours)**

For details on required courses, refer to the General Education program. One Writing Intensive (W) course and the Oral Communications (O) course are fulfilled by courses in the major.

#### **Foreign Language Courses (8 credit hours)**

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

#### **Major Courses (43 credit hours)**

##### **Foundation Courses (12 credit hours)**

ARTB 1201 2D Design (3)  
ARTB 1202 3D Design (3)  
ARTB 1203 Drawing 1 (3)  
ARTB 1206 Conceptual Practices (3)

##### **Art History Courses (9 credit hours)**

ARTH 1211 Art History Survey 1 (3)  
ARTH 1212 Art History Survey 2 (3)  
ARTH 2110 Contemporary Art History (3)

##### **Studio Courses (21 credit hours)**

ARTP 2131 Painting 1 (3)  
or ARTD 2139 Drawing 2 (3)  
ARTR 2161 Print Media: Silkscreen, Relief, and Mixed Media (3)  
ARTM 2105 Digital Media (3)  
One 2000-level class from ARTC (Ceramics), ARTF (Fibers), or ARTZ (Sculpture) (3)  
One more 2000-level class from a different area than

above of ARTC, ARTF, or ARTZ (3)  
Any two studio classes at the 3000-level from ARTC, ARTD, ARTF, ARTG, ARTL, ARTM, ARTP, ARTR, ARTT, or ARTZ (6)\*

### ***BFA Portfolio Review Course (1 credit hour)***

ARTA 3201 BFA Portfolio Review (1)\*

### **Concentration Courses (39 credit hours)**

ARTE 2100 Introduction to Art Education (3)\*  
ARTE 3121 Elementary Art Methods (3)\*  
ARTE 3123 Critical and Creative Thinking in Art Education (3)\*  
ARTE 3124 Transcultural Identities and Art Education (3)\*  
ARTE 4124 Contemporary Issues in Art Education (3)\*  
ARTE 4122 Secondary Art Methods (3)\*  
ARTE 4467 Student Teaching in Visual Art (12)\*  
EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)\*  
EIST 4100 Computer Applications in Education (3)\*  
SPED 2100 Introduction to Students with Special Needs (3)

*\*Transfer students must take these courses at UNC Charlotte.*

## **Degree Total = 124 Credit Hours**

### **Grade Requirements**

An overall 2.5 GPA and a 2.5 GPA in all major courses is required. Grades of C or above are required for all major courses (B or above in ARTE 2100).

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## **Bachelor of Arts in Art History**

The Bachelor of Arts (B.A.) in Art History requires 120 credit hours.

### **Additional Admission Requirements**

Students declare a Major in Art History by indicating this on the application to UNC Charlotte, or by filling out a Change of Major/Minor form to record Art History major status. There is no portfolio submission for this degree. A cumulative GPA of 2.5 is required for admission to this major. Matriculated and transfer students who do not meet requirements for admission to the program because of special circumstances may petition the Art History Faculty for acceptance into the program. Students seeking to apply coursework taken at other institutions to the Art History major must provide *copies of the official course description and a syllabus* for each course requested for consideration.

### **Degree Requirements**

#### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

#### **Major Courses (12 credit hours)**

ARTH 1211 Art History Survey I (3)  
ARTH 1212 Art History Survey II (3)  
ARTH 2110 Contemporary Art History (3)

ARTH 3114 Art History Methods (3)  
or ARTH 3115 Honors Art History Methods (3)

*Note: ARTH 1211 and ARTH 1212 are normally taken in the Freshman year; ARTH 2110 is normally taken in the Sophomore year or as soon as possible after declaring the major. ARTH 3114 or ARTH 3115 (taught simultaneously) may be taken when the other three major courses have been completed.*

#### **Restricted Elective Courses (18 credit hours)**

- No more than 6 hours are at the 2000-level
- At least 3 hours are in Non-Western Art History
- At least 3 hours are in Ancient Art History (Prehistoric to 500 CE)
- At least 3 hours are in Medieval, Renaissance or Baroque Art History (500-1700 CE)
- At least 3 hours are in Recent Art History (1700 CE-Present)

#### **2000-Level Elective Art History Courses (maximum 6 credit hours)**

ARTH 2001 Topics in Art History (3)  
ARTH 2140 Medieval Art (3)  
ARTH 2190 Art of the United States (3)

**3000-Level Elective Art History Courses in Non-Western Art (minimum 3 credit hours)**

ARTH 3317 Maya Art (3)  
ARTH 3318 Mexica (Aztec) Art (3)  
ARTH 3319 Andean Art (3)

**3000-Level Elective Art History Courses in Ancient Art (minimum 3 credit hours)**

ARTH 3320 Ancient Egypt and Near Eastern Art (3)  
ARTH 3322 Ancient Greek Art (3)  
ARTH 3323 Ancient Roman Art (3)

**3000-Level Elective Art History Courses in Medieval, Renaissance, or Baroque Art (minimum 3 credit hours)**

ARTH 3349 Gothic Art (3)  
ARTH 3350 Northern Renaissance Art (3)  
ARTH 3351 Italian Renaissance Art (3)  
ARTH 3360 Northern Baroque Art (3)

**3000-Level Elective Art History Courses in Recent Art (minimum 3 credit hours)**

ARTH 3100 Field Study in Visual Art (3)  
ARTH 3381 Modernism (3)  
ARTH 3393 History of Photography (3)  
ARTH 3394 Women and Art (3)

**Senior Seminar (3 credit hours)**

*Select one of the following:*

ARTH 4601 Problems in Pre-Columbian Art History (3)  
ARTH 4603 Problems in Ancient Art History (3)  
ARTH 4605 Problems in Renaissance Art History (3)  
ARTH 4609 Problems in Recent Art History (3)

**Related Courses (3 credit hours)**

*Select one of the following\*:*

AFRS 2105 Black Images in the Media (3)  
AFRS 2206 African Literature, Music and Art (3)  
AMST 3090 Topics in American Film (3)  
AMST 3100 Introduction to American Studies (3)  
ANTH 2050 Topics in Archaeology (3)  
ANTH 2122 Beliefs, Symbols and Rituals (3)  
ANTH 2151 Introduction to Archaeology (3)  
ARCH 4201 Architectural History I: Prehistory-1750 (3)  
ARCH 4202 Architectural History II: 1750-Present (3)  
ENGL 2106 Film Criticism (3)  
GEOG 2100 Maps and Graphs (3)  
GERM 3160 Survey of German Film (3)  
HIST 2130 Introduction to Historic Preservation (3)  
HIST 2135 Introduction to Museums and Historic Sites (3)  
HIST 3010 History and Culture Through Film, Non-Western (3)  
HIST 3011 History and Culture Through Film (3)  
HIST 3281 American Cities (3)  
LTAM 3360 Studies in Hispanic Film (3)

PHIL 3220 Aesthetics (3)  
POLS 3104 Mass Media (3)  
RELS 3101 Greek Myths and Religions (3)  
RELS 3163 The Religious Art and Architecture of India (3)  
RELS 3212 Films and Identity (3)  
RELS 4127 Material Christianity (3)  
RUSS 3203 Russian Civilizations and Culture (3)  
SOCY 2112 Popular Culture (3)  
WGST 2110 Women and the Media (3)  
WGST 3150 Body Image (3)

*\*Any other course must be preapproved by the Coordinator of Art History and the Department Chair.*



**Unrestricted Elective Courses (41-47 credit hours)**  
As needed.

**Degree Total = 120 Credit Hours**

**Grade Requirement**

A GPA of 2.5 in the major is required for graduation.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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**Honors Program in Art History**

The optional Honors credential may be awarded to students with a minimum overall GPA of 3.0 and a GPA of at least 3.25 in Art History courses (candidate must meet GPA requirements to apply to program and maintain them to graduate with the departmental honors designation).

Additionally, to receive Honors in Art History, a candidate must:

- 1) Approach an Art History faculty member with their desire to apply to the program and discuss your expected area of research/topic.
- 2) After securing an Art History faculty member's

agreement to serve as thesis advisor, students must register for ARTH 3115, (Honors Art History Methods (offered in Fall semesters only)), and earn an A in that course. During the course, complete the Application for Admission to Candidacy Form.

- 3) Earn an A in “Problems in Art History” seminar.
- 4) Register for ARTH 4700 (Honors Art History Thesis) and present an honors thesis based on in-depth research in primary sources to a committee composed of three members, at least two of whom must be Art History faculty. An honors candidate may fulfill requirements 3 and 4 either in sequence, or concurrently during the same semester, as schedules demand.

Upon successful completion, the honors notation will appear on a student’s official transcript.

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## Minor in Art History

Students with any major (except Art History) may earn an 18 credit hour Minor in Art History. A GPA of 2.0 is required for admission. Students must earn a C or above in all courses applied toward the Minor in Art History. For details, see the Academic Advisor.

Students pursuing a Minor in Art History must seek permission from instructors to register for any course with an “Art major” prerequisite. Permission is granted at the discretion of the instructor and is not guaranteed.

### Course Requirements

- ARTH 1211 Art History Survey 1 (3)
- ARTH 1212 Art History Survey 2 (3)
- Any four more ARTH courses (12)

At least 12 of the credits towards the Minor in Art History must be taken at UNC Charlotte.



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# Department of Dance

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<http://dance.uncc.edu>

The Department of Dance offers students rich dance experiences in state-of-the-art facilities, working with faculty who are innovative leaders in performance, choreography, dance scholarship, and teacher training.

Our mission is to contribute innovation and leadership to the field through creative/scholarly research, teaching, service, and community engagement. Through comprehensive, innovative courses, we provide our diverse student body with an exemplary liberal arts education grounded in dance as a cultural practice, art form, and interdisciplinary subject. We embrace and celebrate dance as a way of learning about ourselves and the world around us. Committed to access, equity and inclusion, the dance program develops artists, educators, scholars, and arts-literate citizens who thrive in complex global environments and make sustained contributions to their communities.



## Degree Programs

The Department of Dance awards a Bachelor of Arts degree in Dance. All students receive a well-rounded experience of dance while concentrating in one of two areas: (1) Performance, Choreography, and Theory, or (2) Dance Education with preparation for North Carolina K-12 Fine and Performing Arts, Dance Teacher licensure. A Minor in Dance is also available. Additionally, in partnership with Charlotte’s professional dance company, Charlotte Ballet, the department offers a Professional Training Certificate in Dance for students specializing in ballet performance. Any UNC Charlotte student may audition for this unique two-year certificate program.

Dance degree studies include courses in diverse dance practices, among them: modern dance, ballet, vintage

jazz, dance forms from West Africa and Latin America, improvisation, contact improvisation, choreography, performance, dance history, anatomy, ballet pedagogy, and music and writing for dance. Specialized dance teaching methods, clinical experiences in area schools, and coursework in the College of Education are required for the Concentration in Dance Education. In addition to taking core courses in their Dance concentrations, students fulfill the University's General Education requirements and can select electives in areas of interest. Specific course requirements and the attendance policy are listed on each course syllabus.

The unique research interests, expertise, and professional connections of our faculty provide extraordinary opportunities for students. By audition, students perform in concerts featuring original works by faculty and guest choreographers, as well as re-staged masterworks. In recent years, students have performed choreography by Martha Graham in concert with the Martha Graham Dance Company and welcomed Jawole Willa Jo Zollar and the Urban Bush Women for a residency that led to a student performance of Zollar's work. A major National Science Foundation grant allowed students to join in groundbreaking research in dance and technology. Artists touring Charlotte, such as dancers from Matthew Bourne's *New Adventures*, Alvin Ailey American Dance Theatre, and Parsons Dance, conduct master classes on campus.

Students interested in dance scholarship receive mentoring in research, writing, and oral communication skills and have presented work at university symposia and regional and national conferences. Faculty also nurture student choreographers, who may present their choreography on stage for credit. Careful academic advising supports student success and guides those who want to double major.

## Career Opportunities

UNC Charlotte dance graduates work as performers, choreographers, public school educators, dance studio owners/teachers, and researchers. For some careers, students seek advanced training in graduate programs or apprentice with professional organizations. Some students combine dance degrees with study in exercise science, journalism, athletic training, psychology, education, communication studies, women's and gender studies, or business.

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## Bachelor of Arts in Dance with Concentration in Performance, Choreography, and Theory

A Major in Dance with a Concentration in Performance, Choreography, and Theory leading to the B.A. degree requires 120 credit hours, including 53 credit hours of dance content coursework.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses

##### Foundation Courses (22 credit hours)

- DANC 1201 Foundations in Dance (2)
- DANC 1209 Ballet for Majors IA (2)
- DANC 1210 Ballet for Majors IB (2)
- DANC 1217 Modern Dance for Majors IA (2)
- DANC 1218 Modern Dance for Majors IB (2)
- DANC 2209 Ballet for Majors IIA (2)
- DANC 2210 Ballet for Majors IIB (2)
- DANC 2217 Modern Dance for Majors IIA (2)
- DANC 2218 Modern Dance for Majors IIB (2)
- DANC 2226 Vintage Jazz Dance (2)
- DANC 3210 Ballet for Majors III (2)  
or DANC 3218 Modern Dance for Majors III (2)

##### Creative Process Courses (5 credit hours)

- DANC 1280 Improvisation (2)
- DANC 2216 Choreography I (3)

##### Dance Theory Courses (15 credit hours)

- DANC 2119 Anatomy for Dancers (3)
- DANC 2251 Lighting Design I (3)
- DANC 3221 Dance History I (3)
- DANC 3222 Dance History II (3)
- DANC 4110 Communicating Across the Dance Discipline (3) (W)

##### Dance Theory and Creative Practice Courses (3 credit hours)

- DANC 2016 Choreographic Analysis (3)  
or DANC 3227 Ballet Pedagogy (3)  
or DANC 3230 Choreography II (3)

##### Performance and Production Courses (4 credit hours)

- DANC 2401 Production Practicum - Dance Running Crew (1)
- DANC 2402 Performance Practicum (1)
- DANC 2401 Production Practicum - Dance Running Crew (1)  
or DANC 2402 Performance Practicum (1)
- THEA 2401 Production Practicum (1)

### Restricted Elective Courses (4 credit hours)

Among the possibilities for dance electives are courses in the major curriculum that “may be repeated for credit,” non-major courses, and special topics courses including:

- DANC 1109 Pilates (2)
- DANC 2124 Irish Traditional Dance (2)
- DANC 2125 West African Dance (2)
- DANC 2126 Tap Dance (2)
- DANC 2127 Latin Dance Forms (2)
- DANC 2227 Contemporary Jazz Dance (2)
- DANC 2403 Dancing for Choreographers (2)
- DANC 3100 Pointe (2)
- DANC 3229 Contact Improvisation (2)
- DANC 4001 Topics in Dance (1-3)

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To meet requirements for the Concentration in Performance, Choreography, and Theory, all dance content courses must be completed with no more than one grade of D and a GPA of at least 2.75. The student must also have an overall 2.5 GPA or above. The Department of Dance requires a student review process, including a Sophomore Review held the third semester of study, for continued status as a dance major.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Arts in Dance with Concentration in Dance Education

The Bachelor of Arts (B.A.) in Dance with a Concentration in Dance Education prepares students for K-12 Dance Education licensure in North Carolina. It is designed for students who wish to become dance teachers in public schools.

### Additional Admission Requirements

Students seeking K-12 Dance Education Licensure should plan to declare the Concentration in Dance Education by the end of the first semester of Sophomore year. A later decision may result in a delayed graduation date.

The Department of Dance formally reviews students in their third semester as a dance major. Satisfactory completion of this review is required for continued status as a dance major.

After submitting the Application to Teacher Education to the College of Education and completing specific Dance coursework, the Concentration in Dance Education is added and students progress with upper-level coursework.

### Degree Requirements

The Concentration in Dance Education consists of 76 required credit hours in the Department of Dance and 18 required credit hours in the College of Education.

### General Education Courses (34 credit hours)

For details on required courses, refer to the General Education program. Both Writing Intensive (W) courses and the Oral Communications (O) course are fulfilled by courses in the major.

### Foreign Language Courses (8 credit hours)

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

### Major Courses (54 credit hours)

#### *Dance Technique Courses (26 credit hours)*

- DANC 1201 Foundations in Dance (2)
- DANC 1209 Ballet for Majors IA (2)
- DANC 1210 Ballet for Majors IB (2)
- DANC 1217 Modern Dance for Majors IA (2)
- DANC 1218 Modern Dance for Majors IB (2)
- DANC 2125 West African Dance (2)
- DANC 2127 Latin Dance Forms (2)
- DANC 2209 Ballet for Majors IIA (2)
- DANC 2210 Ballet for Majors IIB (2)
- DANC 2217 Modern Dance for Majors IIA (2)
- DANC 2218 Modern Dance for Majors IIB (2)

- DANC 2226 Vintage Jazz Dance (2)
- DANC 3210 Ballet for Majors III (2)
- or DANC 3218 Modern Dance for Majors III (2)

**Creative Process Courses (8 credit hours)**

- DANC 1280 Improvisation (2)
- DANC 2216 Choreography I (3)
- DANC 2016 Choreographic Analysis (3)
- or DANC 3230 Choreography II (3)
- or DANC 3227 Ballet Pedagogy (3)

**Dance Theory Courses (17 credit hours)**

- DANC 2119 Anatomy for Dancers (3)
- DANC 2228 Music and Dance (2)
- DANC 2251 Lighting Design I (3)
- DANC 3221 Dance History I (3)
- DANC 3222 Dance History II (3)
- DANC 4110 Communicating Across the Dance Discipline (3)

**Performance and Production Courses (3 credit hours)**

- DANC 2401 Production Practicum - Dance Running Crew (1)
- DANC 2402 Performance Practicum (1)
- THEA 2401 Production Practicum (1)

**Concentration Courses (40-41 credit hours)**

- DANC 4227 Dance Education Methods I (3)
- DANC 4227L Elementary Clinical Experience (1)
- DANC 4257 Dance Education Methods II (3)
- DANC 4257L Middle School and High School Clinical Experience (1)
- DANC 4467 Student Teaching/Seminar: K-12 Fine and Performing Arts: Dance (14) (0)
- EDUC 2100 Introduction to Education and Diversity in Schools (3)
- EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)
- EIST 4100 Computer Applications in Education (3)
- ELED 3120 The Elementary School Child (3)
- or MDLG 3130 The Early Adolescent Learner (4)
- or SECD 4140 Adolescence and Secondary School (3)
- READ 3255 Integrating Reading and Writing Across Content Areas (3)
- SPED 2100 Introduction to Students with Special Needs (3)

**Degree Total = 125-137 Credit Hours**

**Grade Requirements**

To meet requirements for the Concentration in Dance Education (K-12), all dance content courses must be completed with a grade of C or above; a GPA of 2.75 or above in all required Dance Education Concentration courses; and an overall GPA of 2.5 or above.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



**Minor in Dance**

**Minor Requirements**

A Minor in Dance consists of 21-24 required credit hours, including:

**Dance Core (6 credit hours)**

- DANC 1212 Ballet I (2)
- DANC 1214 Modern Dance I (2)
- DANC 2226 Vintage Jazz Dance (2)

**Dance Theory (2-3 credit hours)**

Select one of the following:

- DANC 2119 Anatomy for Dancers (3)
- DANC 2228 Music and Dance (2)
- DANC 4110 Communicating Across the Dance Discipline (3) (W)
- LBST 1101 The Arts and Society: Dance (3)\*

*\*Dance minors using LBST 1101 to satisfy Minor in Dance requirements must take another LBST Arts and Society course to fulfill the University's General Education requirements.*

**Dance History (3 credit hours)**

Select one of the following:

- DANC 3221 Dance History I (3)
- DANC 3222 Dance History II (3)

**Dance Production I (1-2 credit hours)**

Select one of the following:

- DANC 2401 Production Practicum – Dance Running Crew (1)
- DANC 2402 Performance Practicum (1)
- DANC 2403 Dancing for Choreographers (2)

**Dance Production II (1 credit hour)**

Select one of the following:

- DANC 2402 Performance Practicum (1) (*This choice is repeated from above*)

THEA 2401 Production Practicum (1)

### Dance Elective Courses (8 credit hours)

*Select four of the following:*

- DANC 1109 Pilates (2)
- DANC 2124 Irish Traditional Dance (2)
- DANC 2125 West African Dance (2)
- DANC 2126 Tap Dance (2)
- DANC 2127 Latin Dance Forms (2)
- DANC 2227 Contemporary Jazz Dance (2)
- DANC 2403 Dancing for Choreographers
- DANC 3100 Pointe (2)
- DANC 3229 Contact Improvisation (2)

Among the possibilities for dance electives are non-major courses that “may be repeated for credit” and DANC 4001 (Special Topics) courses.

### Grade Requirements

To meet requirements for the Minor in Dance, all dance content courses must be completed with no more than one grade of D and a Minor in Dance GPA of at least 2.75.



## Professional Training Certificate in Dance

In conjunction with Charlotte's professional dance company, Charlotte Ballet, UNC Charlotte offers a Professional Training Certificate in Dance for students specializing in ballet performance. This unique partnership provides the student an association with a professional dance company while earning a college degree. The 16 credit hours earned in the Certificate are included in the requirements for the baccalaureate degree. Pre-college credit is also available to high school students.

Open by audition to a student in any academic major, the two-year Professional Training Certificate in Dance provides training with teachers at Charlotte Ballet. Rehearsal and performance opportunities are available in addition to classes in ballet technique, pas de deux,

pointe, and variations. The Charlotte Ballet is an exceptional company whose Artistic Director, Jean-Pierre Bonnefoux, and Associate Director, Patricia McBride, include both classical and contemporary works in the repertory.

### Certificate Requirements

- DANC 3201 Professional Training Certificate in Dance (4)
- DANC 3202 Professional Training Certificate in Dance (4)
- DANC 4201 Professional Training Certificate in Dance (4)
- DANC 4202 Professional Training Certificate in Dance (4)

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# Department of Music

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<http://music.uncc.edu>

The Department of Music provides a comprehensive education that produces artists, scholars, and educators who embody musical excellence and professional integrity. The curriculum stresses faculty-mentored individual studies in music while also emphasizing the benefits offered by a major research university. The city of Charlotte provides a vibrant cultural community that gives students numerous opportunities to experience, and even participate in, performances by resident professional ensembles such as the Charlotte Symphony Orchestra and Opera Carolina. The Department of Music itself hosts over 70 events every year, ranging from student concerts to lectures, masterclasses, and recitals by faculty members and other internationally recognized artists. Located in a state-of-the-art teaching and performance facility, the department offers majors and minors intensive professional programs in all wind, string, and percussion instruments, in addition to world-class studies in piano, voice, opera and musical theatre, choral music, and jazz. For more information, visit [music.uncc.edu](http://music.uncc.edu).



A major in music offers students comprehensive training in education, performance, or liberal arts. Most music graduates move directly into the profession as teachers or performers, while others opt for advanced training in graduate programs or internships with professional organizations. A number of our alums have used their undergraduate training as a foundation for other professions, including medicine and law.

All students who wish to major or minor in music must audition and complete a series of placement examinations prior to acceptance (see the "Admissions" link at [music.uncc.edu](http://music.uncc.edu) for details). Each student majoring in music, regardless of degree plan or concentration, is required to take private lessons (Applied Music), perform in an approved primary

ensemble, and take Performance Class every semester enrolled.\* For specific degree requirements, including those for the Sophomore Review and the appropriate culminating experience(s), please review the *Department of Music Student Handbook*.

*\*These requirements are not applicable for music education majors during the semester they are enrolled in Student Teaching.*

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## Bachelor of Arts in Music

The Bachelor of Arts (B.A.) in Music degree differs from a Bachelor of Music (B.M.) degree in that it is a liberal arts degree designed for students who want both intensive training in music and the opportunity to explore other areas of academic study. The curriculum consists of 34 credit hours of General Education as well as a Foreign Language proficiency; 55 credit hours in the Core Music Curriculum, including private lessons, ensembles, music theory, aural skills, piano and music history; 18 credit hours of a designated minor or second major; and 13 credit hours of elective courses and additional music classes. The culminating experience for this degree is an academic Senior Project.

### Degree Requirements

#### General Education Courses (34 credit hours)

For details on required courses, refer to the General Education program.

#### Foreign Language Courses (4-8 credit hours)

Select foreign language courses at level 1202 or above.

#### Major Courses (55 credit hours)

##### *Foundation Course (1 credit hour)*

MUSC 1000 Introduction to Music Studies (1)

##### *Ensembles Courses (10 credit hours)*

MUPF 11xx (Primary Ensembles) (8)

MUPF 11xx (Secondary Ensembles) (2)

##### *Applied Music Courses (16 credit hours)*

MUPF 12xx and MUPF 32xx (Applied Music and Advanced Applied Music) (16)

##### *Performance Classes (8 semesters)*

MUSC 1300 Performance Class (0)

MUSC 3300 Advanced Performance Class (0)

##### *Music Theory Courses (8 credit hours)*

MUSC 1230 Structure and Style of Music I (2)

MUSC 1231 Structure and Style of Music II (2)

MUSC 2230 Structure and Style of Music III (2)

MUSC 2231 Structure and Style of Music IV (2)

##### *Class Piano Courses (4 credit hours)*

MUSC 1233 Class Piano I (1)

MUSC 1234 Class Piano II (1)  
MUSC 2233 Class Piano III (1)  
MUSC 2234 Class Piano IV (1)

**Aural Skills Courses (4 credit hours)**

MUSC 1260 Aural Skills and Sight-Singing I (1)  
MUSC 1261 Aural Skills and Sight-Singing II (1)  
MUSC 2260 Aural Skills and Sight-Singing III (1)  
MUSC 2261 Aural Skills and Sight-Singing IV (1)

**Music History Courses (9 credit hours)**

MUSC 4290 Early Music (3) (W)  
MUSC 4294 Classic and Romantic Music (3) (W)  
MUSC 4296 Contemporary and World Music (3) (O)

**Senior Project Course (3 credit hours)**

MUSC 4800 Senior Project Preparation (3)

**Secondary Area of Study (18 credit hours)**

Select a Minor or Second Major.

**Unrestricted Elective Courses (13 credit hours)**

As needed.

**Degree Total = 120 Credit Hours**

**Grade Requirements**

Most music courses require grades of C or above to progress to subsequent levels of study; all required music courses must be passed with grades of C or above to graduate. For specific requirements, refer to the *Department of Music Student Handbook*.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



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## Bachelor of Music with Concentration in Choral/General Music Education

The Bachelor of Music (B.M.) with a Concentration in Choral/General Music Education prepares students for K-12 Music Education licensure in North Carolina. It is designed for vocalists who wish to become public school choral directors.

**Additional Admission Requirements**

Interested students must contact the Arts Education Specialist as soon as possible for advising. A decision later than Freshman year to seek licensure may result in a delayed graduation date.

Students interested in pursuing the Bachelor of Music with a Concentration in Choral/General Music Education must audition through the Department of



Music and take placement tests in Music Theory, Aural Skills, and Piano. If accepted by the Department of Music and admitted to the University, students proceed with major coursework. A

second performance-based assessment, the Sophomore Review,

is required at the end of the Sophomore year along with the Application to Teacher Education. After successfully completing both requirements, the Concentration in Choral/General Music Education is added and the student progresses with upper-level coursework.

**Degree Requirements**

**General Education Courses (34 credit hours)**

For details on required courses, refer to the General Education program. Both Writing Intensive (W) courses and the Oral Communications (O) course are fulfilled by the Music History courses in the major.

**Foreign Language Courses (8 credit hours)**

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

**Major Courses (54 credit hours)**

**Foundation Courses (6 credit hours)**

MUSC 1000 Introduction to Music Studies (1)  
MUSC 2151 Introduction to Music Technology (1)

MUSC 3135 Choral Conducting (2)  
MUSC 4235 Orchestration and Arranging (2)

**Ensembles Courses (9 credit hours)**

MUPF 1120 University Chorale (1) (7 semesters)  
MUPF 112x Secondary Ensembles (1) (2 semesters)

**Applied Music and Recital Preparation Courses (14 credit hours)**

MUPF 12xx Applied Music (2) (4 semesters)  
MUPF 32xx Advanced Applied Music (2) (2 semesters)  
MUPF 44xx Senior Recital Preparation (2)  
MUSC 2400 Sophomore Review (0)

**Performance Classes (8 semesters)**

MUSC 1300 Performance Class (0)  
MUSC 3300 Advanced Performance Class (0)

**Music Theory Courses (8 credit hours)**

MUSC 1230 Structure and Style of Music I (2)  
MUSC 1231 Structure and Style of Music II (2)  
MUSC 2230 Structure and Style of Music III (2)  
MUSC 2231 Structure and Style of Music IV (2)

**Class Piano Courses (4 credit hours)**

MUSC 1233 Class Piano I (1)  
MUSC 1234 Class Piano II (1)  
MUSC 2233 Class Piano III (1)  
MUSC 2234 Class Piano IV (1)

**Aural Skills Courses (4 credit hours)**

MUSC 1230L Aural Skills and Sight-Singing I (1)  
MUSC 1231L Aural Skills and Sight-Singing II (1)  
MUSC 2230L Aural Skills and Sight-Singing III (1)  
MUSC 2231L Aural Skills and Sight-Singing IV (1)

**Music History Courses (9 credit hours)**

MUSC 4290 Early Music (3) (W)  
MUSC 4294 Classic and Romantic Music (3) (W)  
MUSC 4296 Contemporary and World Music (3) (O)

**Concentration Courses (40 credit hours)**

MUED 2100 Introduction to Music Education (2)  
MUED 2141 Music Development and Learning (2)  
MUED 2200 Foundations of Music Education (2)  
MUED 4190 Choral Methods (2)  
MUED 4190L Choral Methods Lab (1)  
MUED 4192 General Music Methods (2)  
MUED 4192L General Music Methods Lab (1)  
MUED 4270 Teaching Discipline: Assessment and Behavior in the Music Classroom (2)  
MUED 4467 Student Teaching/Seminar: K-12 Music (12)  
MUSC 2137 Phonetics and Articulation for Singers I (2)  
MUSC 2138 Phonetics and Articulation for Singers II (2)

MUSC 3135 Choral Conducting (2)  
MUSC 3151 Accompanying for Non-Pianists (1)  
MUSC 4094 Instrumental Ensemble Techniques (1)  
MUSC 4137 Vocal Pedagogy (3)  
EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)

**Degree Total = 136 Credit Hours**

**Grade Requirements**

Most music courses require grades of C or above to progress to subsequent levels of study; all required music courses must be passed with grades of C or above to graduate. For specific requirements, refer to the *Department of Music Student Handbook*.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Music with Concentration in Instrumental/General Music Education

The Bachelor of Music (B.M.) with a Concentration in Instrumental/General Music Education prepares students for K-12 Music Education licensure in North Carolina. It is designed for general music educators and instrumentalists who wish to become school band directors, orchestra directors, or general music educators.



**Additional Admission Requirements**

Interested students must contact the Arts Education Specialist as soon as possible for advising. A decision later than Freshman year to seek licensure may result in a delayed graduation date.

Students interested in pursuing the Bachelor of Music with a Concentration in Instrumental/General Music Education must audition through the Department of Music and take placement tests in Music Theory, Aural Skills, and Piano. If accepted by the Department of Music and admitted to the University, students

proceed with major coursework. A second performance-based assessment, the Sophomore Review, is required at the end of the Sophomore year along with the Application to Teacher Education. After successfully completing both requirements, the Concentration in Instrumental/General Music Education is added and the student progresses with upper-level coursework.

## Degree Requirements

### General Education Courses (34 credit hours)

For details on required courses, refer to the General Education program. Both Writing Intensive (W) courses and the Oral Communications (O) course are fulfilled by courses in the major.

### Foreign Language Courses (8 credit hours)

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

### Major Courses (54 credit hours)

#### Foundation Courses (6 credit hours)

MUSC 1000 Introduction to Music Studies (1)  
MUSC 2151 Introduction to Music Technology (1)  
MUSC 3134 Fundamentals of Conducting (2)  
MUSC 4235 Orchestration and Arranging (2)

#### Ensembles Courses (9 credit hours)

MUPF 11xx Primary Ensembles (1) (7 semesters)  
MUPF 11xx Secondary Ensembles (1) (2 semesters)

#### Applied Music and Recital Preparation Courses (14 credit hours)

MUPF 12xx Applied Music (2) (4 semesters)  
MUPF 32xx Advanced Applied Music (2) (2 semesters)  
MUPF 44xx Senior Recital Preparation (2)  
MUSC 2400 Sophomore Review (0)

#### Performance Classes (7 semesters)

MUSC 1300 Performance Class (0) (4 semesters)  
MUSC 3300 Advanced Performance Class (0) (3 semesters)

#### Music Theory Courses (8 credit hours)

MUSC 1230 Structure and Style of Music I (2)  
MUSC 1231 Structure and Style of Music II (2)  
MUSC 2230 Structure and Style of Music III (2)  
MUSC 2231 Structure and Style of Music IV (2)

#### Class Piano Courses (4 credit hours)

MUSC 1233 Class Piano I (1)  
MUSC 1234 Class Piano II (1)  
MUSC 2233 Class Piano III (1)  
MUSC 2234 Class Piano IV (1)

### Aural Skills Courses (4 credit hours)

MUSC 1230L Aural Skills and Sight-Singing I (1)  
MUSC 1231L Aural Skills and Sight-Singing II (1)  
MUSC 2230L Aural Skills and Sight-Singing III (1)  
MUSC 2231L Aural Skills and Sight-Singing IV (1)

### Music History Courses (9 credit hours)

MUSC 4290 Early Music (3) (W)  
MUSC 4294 Classic and Romantic Music (3) (W)  
MUSC 4296 Contemporary and World Music (3) (O)

### Concentration Courses (39 credit hours)

MUED 2100 Introduction to Music Education (2)  
MUED 2141 Music Development and Learning (2)  
MUED 2200 Foundations of Music Education (2)  
MUED 4192 General Music Methods (2)  
MUED 4192L General Music Methods Lab (1)  
MUED 4194 Instrumental Methods (2)  
MUED 4194L Instrumental Methods Lab (1)  
MUED 4270 Teaching Discipline: Assessment and Behavior in the Music Classroom (2)  
MUED 4467 Student Teaching/Seminar: K-12 Music (12)  
MUPF 1117 Instrumental Lab Ensemble (0) (4 semesters)  
MUSC 122x Techniques Classes (5)  
MUSC 2222 Marching Band Techniques (2)  
MUSC 3136 Instrumental Conducting (2)  
MUSC 4090 Choral Ensemble Techniques (1)  
EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)

## Degree Total = 135 Credit Hours

### Grade Requirements

Most music courses require grades of C or above to progress to subsequent levels of study; all required music courses must be passed with grades of C or above to graduate. For specific requirements, refer to the *Department of Music Student Handbook*.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Music with Concentration in Instrumental Performance

The Bachelor of Music (B.M.) with a Concentration in Instrumental Performance is designed for students who are planning careers as performing musicians. The culminating experiences for this degree program are Junior and Senior Recitals.

## Degree Requirements

### General Education Courses (34 credit hours)

For details on required courses, refer to the General Education program. Both Writing Intensive (W) courses and the Oral Communications (O) course are fulfilled by Music History courses in the major.

### Foreign Language Courses (8 credit hours)

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

### Major Courses (59-61 credit hours)

#### Foundation Courses (7-9 credit hours)

MUSC 1000 Introduction to Music Studies (1)  
MUSC 2101 Introduction to Music Business (1)  
MUSC 2151 Introduction to Music Technology (1)  
MUSC 3135 Fundamentals of Conducting (2)  
MUSC xxxx Additional Course in Business or Technology (1-3)

#### Ensembles Courses (10 credit hours)

MUPF 11xx Primary Ensembles (1) (8 semesters)  
MUPF 11xx Secondary Ensembles (1) (2 semesters)

#### Applied Music and Recital Preparation Courses (17 credit hours)

MUPF 12xx and MUPF 32xx (Applied Music and Advanced Applied Music) (12)  
MUPF 34xx and MUPF 44xx (Junior and Senior Recital Preparation) (5)

#### Performance Classes (8 semesters)

MUSC 1300 Performance Class (0) (4 semesters)  
MUSC 3300 Advanced Performance Class (0) (4 semesters)

#### Music Theory (8 credit hours)

MUSC 1230 Structure and Style of Music I (2)  
MUSC 1231 Structure and Style of Music II (2)  
MUSC 2230 Structure and Style of Music III (2)  
MUSC 2231 Structure and Style of Music IV (2)

#### Class Piano Courses (4 credit hours)

MUSC 1233 Class Piano I (1)  
MUSC 1234 Class Piano II (1)  
MUSC 2233 Class Piano III (1)  
MUSC 2234 Class Piano IV (1)

#### Aural Skills Courses (4 credit hours)

MUSC 1260 Aural Skills and Sight-Singing I (1)  
MUSC 1261 Aural Skills and Sight-Singing II (1)  
MUSC 2260 Aural Skills and Sight-Singing III (1)  
MUSC 2261 Aural Skills and Sight-Singing IV (1)

#### Music History Courses (9 credit hours)

MUSC 4290 Early Music (3) (W)  
MUSC 4294 Classic and Romantic Music (3) (W)

MUSC 4296 Contemporary and World Music (3) (O)

### Concentration Courses (22 credit hours)

MUSC 2235 Jazz Improvisation I (2)  
or MUSC 4235 Orchestration and Arranging (2)  
MUSC 3136 Instrumental Conducting (2)  
MUSC 413x Pedagogy and Literature (3)

### Restricted Elective Courses (15 credit hours)

Select from a list of approved courses.

## Grade Requirements

Most music courses require grades of C or above to progress to subsequent levels of study; all required music courses must be passed with grades of C or above to graduate. For specific requirements, refer to the *Department of Music Student Handbook*.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Music with Concentration in Vocal Performance

The Bachelor of Music (B.M.) with a Concentration in Vocal Performance is designed for students who are planning careers as performing musicians. The culminating experiences for this degree program are Junior and Senior Recitals.



## Degree Requirements

### General Education Courses (34 credit hours)

For details on required courses, refer to the General Education program. Both Writing Intensive (W) courses and the Oral Communications (O) course are fulfilled by Music History courses in the major.

### Foreign Language Courses (8 credit hours)

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

### Major Courses (59-61 credit hours)

#### Foundation Courses (7-9 credit hours)

MUSC 1000 Introduction to Music Studies (1)  
MUSC 2101 Introduction to Music Business (1)  
MUSC 2151 Introduction to Music Technology (1)  
MUSC 3135 Fundamentals of Conducting (2)  
MUSC xxxx Additional Course in Business or Technology (1-3)

### **Ensembles Courses (10 credit hours)**

MUPF 11xx Primary Ensembles (1) (8 semesters)  
MUPF 11xx Secondary Ensembles (1) (2 semesters)

### **Applied Music and Recital Preparation Courses (17 credit hours)**

MUPF 12xx and MUPF 32xx (Applied Music and  
Advanced Applied Music) (12)  
MUPF 34xx and MUPF 44xx (Junior and Senior Recital  
Preparation) (5)

### **Performance Classes (8 semesters)**

MUSC 1300 Performance Class (0) (4 semesters)  
MUSC 3300 Advanced Performance Class (0) (4  
semesters)

### **Music Theory Courses (8 credit hours)**

MUSC 1230 Structure and Style of Music I (2)  
MUSC 1231 Structure and Style of Music II (2)  
MUSC 2230 Structure and Style of Music III (2)  
MUSC 2231 Structure and Style of Music IV (2)

### **Class Piano Courses (4 credit hours)**

MUSC 1233 Class Piano I (1)  
MUSC 1234 Class Piano II (1)  
MUSC 2233 Class Piano III (1)  
MUSC 2234 Class Piano IV (1)

### **Aural Skills Courses (4 credit hours)**

MUSC 1260 Aural Skills and Sight-Singing I (1)  
MUSC 1261 Aural Skills and Sight-Singing II (1)  
MUSC 2260 Aural Skills and Sight-Singing III (1)  
MUSC 2261 Aural Skills and Sight-Singing IV (1)

### **Music History Courses (9 credit hours)**

MUSC 4290 Early Music (3) (W)  
MUSC 4294 Classic and Romantic Music (3) (W)  
MUSC 4296 Contemporary and World Music (3) (O)

### **Concentration Courses (23 credit hours)**

MUSC 2137 Phonetics and Articulation for Singers I  
(2)  
MUSC 2138 Phonetics and Articulation for Singers II  
(2)  
MUSC 3135 Choral Conducting (2)  
MUSC 3151 Accompanying for Non-Pianists (1)  
MUSC 4037 Vocal Literature (3)  
MUSC 4137 Vocal Pedagogy (3)  
MUSC 4235 Orchestration and Arranging (2)

### **Foreign Language Courses (8 credit hours)**

Select two semesters of a different foreign language  
than previously taken, with course numbers such as  
1201 and 1202.

## **Grade Requirements**

Most music courses require grades of C or above to progress to subsequent levels of study; all required music courses must be passed with grades of C or above to graduate. For specific requirements, refer to the *Department of Music Student Handbook*.

## **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## **Minor in Music**

The Minor in Music is designed for students who wish to study music while working towards a degree in another field. Music minors participate in ensembles, receive private lessons, and take introductory courses in music theory, aural skills, and piano, as well as LBST 1103, which can also be used to satisfy a General Education requirement. The total unit requirement for the Minor in Music is 21 credit hours. For specific requirements, refer to the *Department of Music Student Handbook*.

## **Minor Requirements**

### **Core Course (3 credit hours)**

LBST 1103 Arts in Society: Music (3)

### **Performance Courses (8 credit hours)**

MUPF 10xx Applied Music for Minors (4) (4  
semesters)  
MUPF 11xx Primary Ensembles (4) (4 semesters with  
Applied Music)

### **Music Theory Courses (4 credit hours)**

MUSC 1230 Structure and Style of Music I (2)  
MUSC 1231 Structure and Style of Music II (2)

### **Class Piano Courses (2 credit hours)**

MUSC 1233 Class Piano I (1)  
MUSC 1234 Class Piano II (1)

### Aural Skills Courses (2 credit hours)

MUSC 1260 Aural Skills and Sight-Singing I (1)  
MUSC 1261 Aural Skills and Sight-Singing II (1)

### Elective Courses (2 credit hours)

MUSC xxxx Music Electives (2)

### Grade Requirements

All courses must be passed with grades of C or above to graduate with a Minor in Music.

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## Undergraduate Certificate in Jazz

The Undergraduate Certificate in Jazz is designed for instrumentalists who wish to enhance their undergraduate study with intensive training in jazz. It is available to instrumentalists in any of the three music degree tracks (B.A. in Music, B.M. in Music Education, and B.M. in Music Performance) who wish to supplement their required instruction in classical music with elective training in jazz. The curriculum consists of 20 credit hours of jazz studies that combine instruction in performance and musicianship, including ensembles, lessons, improvisation, history, and a course in either arranging or pedagogy. For specific requirements, refer to the *Department of Music Student Handbook*.

### Certificate Requirements

#### Performance Courses (10 credit hours)

MUPF 1111 Jazz Ensemble (4)  
MUPF 1170 Jazz Combo (2)  
MUPF 22xx Applied Music: Jazz (4) (*4 semesters*)

#### Musicianship Courses (10 credit hours)

MUSC 2235 Jazz Improvisation I (2)  
MUSC 2236 Jazz Improvisation II (2)  
MUSC 4138 Jazz Pedagogy and Materials (3)  
or MUSC 4234 Jazz Arranging and Composition (3)  
MUSC 4298 Jazz History (3)

### Grade Requirements

All required courses must be passed with a grade of B or above to earn the Undergraduate Certificate in Jazz.

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# Department of Theatre

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<http://theatre.uncc.edu>

The Department of Theatre strives to inspire our students to expand their vision of the world and themselves through the study and practice of the craft of theatre, preparing them for leadership as practitioners, educators, and artists.

The mission is accomplished in a two-fold manner. First, we promote creativity, inquisitiveness, critical thinking, communication skills (oral and written), and cultural appreciation through the study of theatre. Second, we teach the specific craft of theatre-making through classroom experience, individual and collaborative study, and actualized stage productions, all emphasizing the particular skills necessary for the generation of high-quality stage performance. Students learn to participate in current critical discourse while engaging with the theory, history and material conditions of performance, and broaden their personal horizons as they encounter a range of ideas and issues – political, social, and aesthetic – through the unique art form which is theatre. The program thus creates a rigorous intellectual environment firmly rooted in the theatrical art form.



From this broad-based grounding in the fundamentals of the medium, students can then opt to specialize in one of the component subfields: history and theory, dramaturgy, playwriting, acting, directing, production, and design. In addition these fundamentals will also prepare students who so wish to specialize in theater education with the goal of obtaining a North Carolina teaching license. Throughout their training, students work both as faculty-mentored individuals and in collaborative groups, so that in addition to making significant contributions to the cultural life of the campus through departmental productions, they emerge ready for theatrical internships, graduate programs or for any profession which places value on independent thinking, confidence, and communication skills.

## Degree Programs

The department awards the Bachelor of Arts degree in Theatre, the Minor in Theatre, and North Carolina K-12 teacher licensure can be earned through the concentration in Theatre Education.

## Productions

The department presents a season of mainstage and lab theatre (blackbox) productions as well as a second “shoestring” series of performances and events, classroom projects, student-driven works, and original collaborations. Auditions are open to all members of the University community. Productions and classes are held in Robinson Hall, which contains three performance spaces and specialized rehearsal, design, and construction laboratories, as well as additional classrooms and department offices.



## Bachelor of Arts in Theatre

### Degree Requirements

A Major in Theatre leading to the B.A. degree requires a total of 120 credit hours, including 53 credit hours of theatre courses.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (38 credit hours)

THEA 1100 Exploration of Voice and Movement (3)  
(0)

THEA 1140 The Theatre Experience (3)

THEA 1201 Theatre Collaboration (3) (SL)

THEA 2140 Play Analysis (3)

THEA 2141 Dramaturgy I (3) (W)

THEA 2201 Acting I (3) (O)

THEA 2130 Theatre History I (3)

THEA 2131 Theatre History II (3)

THEA 2401 Production Practicum (1) (*taken for 2 semesters*)

THEA 2402 Performance Practicum: Theatre (1) **OR** a third THEA 2401 Production Practicum (1)

THEA 3600 Junior Seminar (1)

THEA 4600 Senior Project (1)

### **Technology Course and Lab (3 credit hours)**

*Select one technology course and its corresponding lab:*

THEA 1220 Costume Technology I (2)

THEA 1220L Costume Technology Laboratory I (1)

or

THEA 1240 Scenic Technology I (2)

THEA 1240L Scenic Technology I Laboratory (1)

or

THEA 1260 Lighting and Sound Technology I (2)

THEA 1260L Lighting and Sound Technology I  
Laboratory (1)

### **Design Course (3 credit hours)**

*Select one of the following:*

THEA 2210 Costume Design I (3)

THEA 2230 Scenic Design I (3)

THEA 2250 Lighting Design I (3)

### **Technology Course and Lab or Design Course (3 credit hours)**

*Select one technology course and its corresponding lab or one design course not already taken:*

THEA 1220 Costume Technology I (2)  
and THEA 1220L Costume Technology Laboratory  
I (1)

THEA 1240 Scenic Technology I (2)  
and THEA 1240L Scenic Technology I Laboratory  
(1)

THEA 1260 Lighting and Sound Technology I (2)  
and THEA 1260L Lighting and Sound Technology I  
Laboratory (1)

THEA 2210 Costume Design I (3)

THEA 2230 Scenic Design I (3)

THEA 2250 Lighting Design I (3)

### **Seminar (0 credit hours)**

THEA 1600 Majors and Minors Seminar (0)\*

*\*Students enrolled in the major are required to register for and pass THEA 1600 every semester.*

### **Restricted Elective Courses (12 credit hours)**

Students may choose to follow a prescribed emphasis in Design and Production, Performance, or Theatre Studies, or create their own emphasis track. Of these electives, at least one of the courses must be at the 4000-level.

THEA XXXX Theatre Elective (3)

THEA XXXX Theatre Elective (3)

THEA XXXX Theatre Elective (3)

THEA 4XXX Theatre Elective (3)

## Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Grade Requirements

All of the above requirements must be completed with grades of C or above, and a GPA of at least 2.75 in the major.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Arts in Theatre with Concentration in Theatre Education

The Bachelor of Arts (B.A.) in Theatre with a Concentration in Theatre Education prepares students for K-12 Theatre Education licensure in North Carolina. It is designed for students who wish to become theatre teachers in public schools.

### Additional Admission Requirements

Students wishing to pursue licensure are admitted as Theatre majors and should contact the Arts Education Specialist as soon as possible for advising. A decision later than Freshman year to seek licensure may result in a delayed graduation date.

After submitting the Application to Teacher Education, students may be admitted to the Theatre Education program. Once admitted to the Concentration in Theatre Education and the Teacher Education Program in the College of Education, the Concentration in Theatre Education is added to students' records and they progress with upper-level coursework.

## Degree Requirements

### General Education Courses (34 credit hours)

For details on required courses, refer to the General Education program. Both Writing Intensive (W) courses and the Oral Communications (O) course are fulfilled by courses in the major.

### Foreign Language Courses (8 credit hours)

Select two semesters of the same foreign language with course numbers such as 1201 and 1202, or at least three years of the same language in high school.

### Major Courses (41 credit hours)

- THEA 1100 Exploration of Voice and Movement (3)
- THEA 1140 The Theatre Experience (3)
- THEA 1600 Majors and Minors Seminar (0)\*
- THEA 2140 Play Analysis (3)
- THEA 2141 Dramaturgy I (3) (W)
- THEA 2201 Acting I (3) (O)
- THEA 2230 Scenic Design I (3)
- THEA 2670 Stage Management (3)
- THEA 3221 Directing I (3)
- THEA 3600 Junior Seminar (1)

*\*Students are required to register for THEA 1600 every semester, except the semester they are student teaching.*

### Technology Course and Lab (3 credit hours)

Select one of the following courses and its corresponding lab:

- THEA 1220 Costume Technology I (2)
- THEA 1220L Costume Technology I Laboratory (1)
  
- THEA 1240 Scenic Technology I (2)
- THEA 1240L Scenic Technology I Laboratory (1)
  
- THEA 1260 Lighting and Sound Technology I (2)
- THEA 1260L Lighting and Sound Technology I Laboratory (1)

### Acting Courses (6 credit hours)

- THEA 1201 Theatre Collaboration (3) (SL)

*Plus one of the following:*

- THEA 2215 Stage Makeup (3)
- THEA 3201 Acting II (3)
- THEA 3205 Voice for the Actor (3)
- THEA 3206 Movement for the Actor (3)

### Production and Performance Practica Courses (4 credit hours)

- THEA 2402 Performance Practicum: Theatre (1)  
or a fourth THEA 2401 Production Practicum (1)

*Select from three different areas (Costume, Scenery, Lighting, or Stage Management):*

THEA 2401 Production Practicum (1) (3 semesters)

### **Theatre History Courses (6 credit hours)**

THEA 2130 Theatre History I (3)

THEA 2131 Theatre History II (3)

### **Concentration Courses (43-44 credit hours)**

THEA 1160 Creative Drama for the Classroom Teacher (3)

THEA 1860 Preliminary Experience in Student Teaching (1)

THEA 2460 Practicum in Creative Drama: K-8 (3)

THEA 4160 Theatre for Youth (3)

THEA 4165 Methods of Facilitating Learning in Theatre Arts (3) (W)

THEA 4460 Practicum in Secondary School Play Production: 9-12 (3)

THEA 4467 Student Teaching/Seminar: K-12 Fine and Performing Arts: Theatre (15)

EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)

EIST 4100 Computer Applications in Education (3)

ELED 3120 The Elementary School Child (3)

or MDLG 3130 The Early Adolescent Learner (4)

MDSK 2100 Foundations of Education and Diverse Youth in Secondary Schools (3)

## **Degree Total = 121-133 Credit Hours**

### **Grade Requirements**

All major coursework must be completed with grades of C or above and a minimum GPA of 2.75. A GPA of 2.75 is required to apply for student teaching.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## **Minor in Theatre**

### **Program Requirements**

A Minor in Theatre requires 23 credit hours including:

### **Required Courses (17 credit hours)**

THEA 1600 Majors and Minors Seminar (0) (taken for a minimum of 3 semesters)

THEA 2130 Theatre History I (3)

or THEA 2131 Theatre History II (3)

THEA 2140 Play Analysis (3)

THEA 2201 Acting I (3) (0)

THEA 2401 Production Practicum (1)

THEA 2402 Performance Practicum: Theatre (1)

or a second THEA 2401 Production Practicum (1)

### **Technology Course and Lab (3 credit hours)**

Select one technology course and its corresponding lab:

THEA 1220 Costume Technology I (2)

THEA 1220L Costume Technology Laboratory I (1)

or

THEA 1240 Scenic Technology I (2)

THEA 1240L Scenic Technology I Laboratory (1)

or

THEA 1260 Lighting and Sound Technology I (2)

THEA 1260L Lighting and Sound Technology I Laboratory (1)

### **Design Course (3 credit hours)**

Select one design course:

THEA 2210 Costume Design I (3)

THEA 2230 Scenic Design I (3)

THEA 2250 Lighting Design I (3)

### **Restricted Elective Courses (6 credit hours)**

Select 6 credit hours of THEA elective courses.

THEA XXXX Theatre Elective (3)

THEA XXXX Theatre Elective (3)

### **Grade Requirements**

All the above requirements must be completed with no more than one grade of D and a GPA of at least 2.5 in the minor.

Belk  
*College of*  
Business



# Belk College of Business

<http://belkcollege.uncc.edu>

The vision of the Belk College of Business is to be a leading urban research business school. We are committed to creating an inclusive culture that inspires a passion for knowledge and intellectual growth as well as dedication to service. We engage in research that fosters innovative business theory, policy, and practice. In strategic partnership with the Greater Charlotte region, we educate our students to become leaders who are critical thinkers, ethically informed, and globally aware. In carrying out our mission, the Belk College of Business is committed to the following shared values:

- **Integrity:** We embrace integrity as the fundamental basis for trust, leadership, and organizational culture.
- **Knowledge and Innovation:** We are dedicated to encouraging intellectual curiosity, advancing knowledge, and promoting innovation.
- **Excellence:** We have a passion for excellence in business, research, and education.
- **Diversity and Inclusion:** We foster an environment that is based on mutual respect, broadens understanding, and builds trust.
- **Global Citizenship:** We promote ethically principled and sustainable global practices that foster economic and social value.

The College of Business consists of the following departments:

- **Department of Accounting**
- **Department of Business Information Systems and Operations Management**
- **Department of Economics**
- **Department of Finance**
- **Department of Management**
- **Department of Marketing**

And the following Interdisciplinary Studies office:

- **Office of Global Business Studies**

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## Degree Programs

### Majors

The Belk College of Business offers undergraduate majors with additional concentrations for students at UNC Charlotte. Students must have earned a minimum cumulative GPA of 2.5, and a minimum GPA of 2.5 in the Progression Requirements\*, in order to be accepted into one of the major programs. These majors include:

- Accounting
- Business Administration with Concentration in Business Analytics\*
- Economics with Concentration in Business
- Economics with Concentration in Liberal Arts
- Finance with Concentration in Finance
- Finance with Concentration in Finance and Accounting
- Finance with Concentration in Risk Management and Insurance
- International Business
- Management with Concentration in Organizational Management
- Management with Concentration in Talent Management
- Management Information Systems with Concentration in Business Intelligence and Analytics
- Management Information Systems with Concentration in MIS
- Management Information Systems with Concentration in Systems Analysis

- Marketing with Concentration in Marketing
- Marketing with Concentration in Marketing Analytics
- Operations and Supply Chain Management

*\*The Major in Business Administration with Concentration in Business Analytics requires a minimum GPA of 3.2 in the Progression Requirements.*

## Minors

The Belk College of Business offers four minors for students at UNC Charlotte. Students must earn a minimum cumulative GPA of 2.5 in order to be accepted into the minor programs. Students must take all prerequisites for the courses required in the minor programs. These minors include:

- Economics
- International Management
- Management Information Systems
- Operations and Supply Chain Management

## Accreditation

All of the degree programs offered by the Belk College of Business are accredited by AACSB International, the Association to Advance Collegiate Schools of Business. AACSB International is the premier accrediting agency for bachelor's, master's, and doctoral degree programs in business administration and accounting.

# Special Business Programs and Opportunities

## Business Honors Program

The Business Honors Program (BHP) provides students with access to a range of opportunities designed to stimulate their thinking and broaden their exposure to topics related to business.

The Business Honors Program is committed to the highest principles of professionalism that guide our actions. We aspire to be a community of learners actively engaged in academic scholarship while demonstrating a high regard for others by modeling excellent ethical standards. We seek to promote service above the self and will learn to support and encourage, educate and mentor, value and empathize with others. We advocate these core values among the membership. The core values of the Business Honors Program are based upon a commitment to academic merit, integrity, respect, service above self and honor.

## Admission

Students interested in being admitted to the Business Honors Program must complete an *Application for Admission* and conduct an interview with the Director of the Business Honors Program and/or the Director of Undergraduate Special Programs. Admission to the program is based on the student's demonstrated Honors potential, the personal interview, and availability of space in the program. Honors potential is determined by examining GPA (minimum 3.5 for currently enrolled and transfer students), SAT or ACT scores (for new freshmen), courses completed, academic and other distinctions, activities, community service, and other related factors. All admitted students must earn and maintain a minimum 3.5 GPA at UNC Charlotte to be an active member of the program. Students failing to meet minimum requirements of the 3.5 GPA, attendance at BHP meetings, and participate in community service events will not be able to continue in the program.

## Required Courses

Students in the Business Honors Program must complete all Business Honors courses offered and at least one Honors College course. Honors courses cannot be repeated. A grade of D or F in any honors course results in a student not being eligible to continue in the program.

## Other Requirements

Business Honors students must also participate in: (1) monthly meetings, (2) community service, and (3) either study abroad or an internship.

## Senior Thesis

Students are required to complete a Senior thesis in BUSN 4701 or a Senior Team Project in the Honors section of MGMT 3280 (Strategic Management). Students work closely with a faculty member for the duration of the thesis or

project. The approval of a thesis proposal through the Honors College Application to Candidacy process is required the semester prior to taking BUSN 4701 or the Honors section of MGMT 3280.

### **Graduation with Business Honors**

To graduate with "Honors in Business," a student must: (1) complete the minimum required honors courses and other requirements, (2) submit an Application for Honors Candidacy at least two semesters prior to graduation, (3) receive a grade of at least A in BUSN 4701 or on the Senior Project in the Honors section of MGMT 3280 (Strategic Management), and (4) present a GPA of at least 3.5 overall and 3.5 in all honors courses for which a grade was assigned.

### **Business Learning Community**

The Business Learning Community (BLC) is a distinct approach to learning that inspires first generation students to become active in their own educational experiences – to truly become a “cross-cultural community of learners.” Students in the BLC interact closely with their peers, faculty, and staff to create the ultimate college experience: the opportunity to take their learning beyond the classroom and apply it in a practical sense to the business world. Participants in this one-year program live on campus together, enroll in common courses, and fulfill business-related extracurricular activities. Freshmen reside in Charles F. Lynch Hall which is designed for learning community students.

### **Admission**

Freshmen who are accepted into the Belk College of Business are encouraged to apply for admission to the BLC. Admission to the program is based on the student's high school GPA, SAT scores, courses completed, other factors, and availability of space in the program. Applications can be submitted online at [lc.uncc.edu](http://lc.uncc.edu).

### **Required Courses**

Students in the BLC must complete specialized courses designed for learning community students. Once students are admitted to the Business Learning Community, they are required to complete all sections offered unless they receive permission from the Business Learning Community Coordinator.

### **Field Trips, Events, and Other Extracurricular Activities**

Students in the BLC are required to participate in all field trips, events, and other extracurricular activities offered by the Business Learning Community during the academic year.

### **Student Center for Professional Development**

Students are encouraged to participate in professional development activities that support academic and career success. The Belk College of Business Student Center for Professional Development (SCPD) is dedicated to helping students define their professional goals, answer questions about career opportunities in business, and engage in success strategies to prepare for the workforce. Some of the support programs and services offered include:

- Individual Career Coaching
- Career Assessment tools
- Professional Development workshops, with topics such as Email Etiquette, Professional Online Branding, Building your Network, and Business Dress
- Internships for Academic Credit



### **Internships for Academic Credit**

Students may apply for academic credit for internship experiences. Internship coursework is graded and requires 150 hours of supervised work experience that directly aligns with a student's declared major. Students may not apply for course credit if the work experience has already concluded, if a student is currently employed and is seeking credit with the same employer, or if the business is family-owned.

Minimum eligibility requirements include the following:

- Junior or Senior standing
- Declared Business Major
- Minimum 2.5 GPA

- ACCT 3312 with grade of C or above (for Accounting majors only)
- MKTG 3110 plus two MKTG electives with grades of C or above (for Marketing majors only)

Interested students should ideally contact the Student Center for Professional Development in the Belk College of Business one semester before they plan to conduct the internship. Students will be required to submit an online application and employer contact form at least two weeks prior to the first day of the semester in which the student plans to enroll. Students will not be authorized to register for the course after the submission deadline has passed.

## Scholarships

Scholarships are available for new and current students in the Belk College of Business. There are a variety of criteria for these scholarships. For example, several scholarships are designated for students interested in studying abroad, and others are designated to recognize academic excellence in the Junior and Senior years. Further information can be obtained from the Office of Student Financial Aid at [finaid.uncc.edu](http://finaid.uncc.edu) and the Belk College of Business Advising Center's website at [belkcollege.uncc.edu/undergraduate-programs/scholarships](http://belkcollege.uncc.edu/undergraduate-programs/scholarships).

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## Degree Requirements

All business degrees are composed of: (1) General Education Requirements, (2) Progression Requirements, (3) Core Requirements, (4) Major Requirements, and (5) Electives. To graduate from UNC Charlotte, students must attain a minimum 120 earned credit hours. "Non-Business Elective" and "General Elective" credit hours may be required to address any shortfall needed to meet the 120 earned hours. A Non-Business Elective can be any course offered by the University outside the Belk College of Business. A General Elective can be any course offered by the University that is not already fulfilling a degree requirement.

## Academic Advising

The Business Advising Center advises all students in the Belk College of Business. Entering students are designated as Pre-Accounting (PACC), Pre-Business (PBUS), or Pre-Economics (PECO). Once students have completed the Progression Requirements during the Junior year, they may officially declare a major program in the Belk College. To declare a major, students will complete a *Curriculum Guide* and *Change of Major* form with their assigned Academic Advisor.

## Catalog Policies

The Belk College reserves the right to impose new curriculum changes at any time. Students not admitted to the upper-division majors are subject to any changes to major requirements regardless of General Education catalog or matriculation term. Readmitted students are automatically considered under the new business requirements.

## Course Level and Prerequisite Restrictions

The Belk College restricts the registration of upper-division business courses (3000-level) to majors only who have attained Junior or Senior standing and satisfied course prerequisites. *Course prerequisites are strongly enforced and cannot be waived.* Pre-Accounting, Pre-Business, and Pre-Economics students with a minimum cumulative GPA of 2.5 and 60 earned credit hours may register for 3000-level Core Courses provided that all necessary prerequisites have been met. The Belk College reserves the right to remove students from any courses for which prerequisites (including minimum GPA requirements) have not been successfully met. Students enrolling in MGMT 3280 (Strategic Management) must have achieved Senior-level status and have completed all Core Courses with minimum grades of C or above. *Pre-Accounting, Pre-Business, and Pre-Economics students may not enroll in MGMT 3280.*

## Grade Replacement and Repeat Policies

*Students are permitted two attempts at any course in the Belk College of Business.* An attempt is defined as a course that is completed with a final grade of A, B, C, D, or F. This includes all: (1) Progression Requirements, (2) Core Requirements, and (3) Major Requirements. Students who earn less than a grade of C within two attempts in any of these required courses will be ineligible to continue in the major. Students are permitted to invoke the Grade Replacement Policy for business courses; however, the repeated course(s) will still count as an attempt.

## Residency Requirements

In addition to meeting University residency requirements, all students seeking undergraduate degrees in the Belk College must complete at least 50 percent of the Core and Major Requirements at UNC Charlotte. This will vary depending on the major program requirements.

Furthermore, at least half of the hours required for an undergraduate degree in the Belk College of Business must be taken outside of the Belk College in order to have a well-rounded and balanced university education and experience. These 60 hours are designated as “Non-Business” electives. In addition to the General Education Requirements, the following courses are designated as Non-Business: ECON 2101, ECON 2102, ECON 3125, MATH 1120, and STAT 1220.

### **Transfer and Second-Degree Students**

The Belk College of Business major programs are designed to allow transfer students from community colleges and other institutions to enter the program and complete their degree requirements at UNC Charlotte. It is very important that students meet with an advisor at their community college or other institution to plan courses that will be accepted into the Belk College of Business. Due to AACSB accreditation standards, equivalency for upper-division business courses may be denied. Transfer equivalencies are granted upon application to UNC Charlotte. *Once a student is admitted into the Belk College, they are prohibited from transferring in additional business coursework (Progression, Core, and Major Courses) from other institutions.*

### **Transfer Credit and Transient Study**

Once a student is admitted into the Belk College, they are prohibited from transferring in business coursework (Progression, Core, and Major Courses) from other institutions without prior approval. Approval will only be granted for 1000- and 2000-level courses taken during the Summer term.

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## Pre-Accounting, Pre-Business, and Pre-Economics

Students who apply for and are accepted into the Belk College of Business are initially classified as Pre-Accounting (PACC), Pre-Business (PBUS), or Pre-Economics (PECO) majors.

### Pre-Accounting, Pre-Business, and Pre-Economics (Business Concentration) Progression Requirements

Students who complete the Progression Requirements listed below may declare an upper-division major in the following areas: Accounting, Economics (Business Concentration), Finance, International Business, Management Information Systems, Management, Marketing, or Operations and Supply Chain Management. Pre-Accounting, Pre-Business, and Pre-Economics (Business Concentration) students seeking admission to the upper-division majors must have met the following criteria:

- 1) attained Junior standing (60 hours or more)
- 2) earned a minimum overall GPA of at least 2.5 for all academic work
- 3) completed the following Progression Courses: ACCT 2121, ACCT 2122, BUSN 1101, ECON 2101, ECON 2102, INFO 2130, MATH 1120, and STAT 1220 with a minimum grades of C
- 4) earned a minimum GPA of at least 2.5 for these Progression Courses
- 5) completed an approved *Curriculum Guide* and *Change of Major* Form with an Academic Advisor in the Belk College of Business Advising Center

Students who fail to declare their major on time will be prohibited from changing their major at a later date if their cumulative GPA falls below a 2.5. They will no longer meet the 2.5 GPA requirement to declare a major.

Students may attempt each of the Progression Courses, listed in (3) above, a **maximum of two times**. An attempt is defined as a course that is completed with a final grade of A, B, C, D, or F. Courses repeated under the Grade Replacement Policy are excluded from the GPA computation, but will count as an attempt. Students who do not meet the Progression Requirements are ineligible for continuation in the Belk College of Business.

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Pre-Economics (Liberal Arts Concentration) Progression Requirements

Students who complete the Progression Requirements listed below may declare an upper-division major in Economics (Liberal Arts Concentration). Pre-Economics students, with a Concentration in Liberal Arts, seeking admission to the upper-division major must have met the following criteria:

- 1) attained Junior standing (60 hours or more)
- 2) earned a minimum overall GPA of at least 2.5 for all academic work
- 3) completed the following Progression Courses: UWRT 1101 and UWRT 1102, ECON 2101 and ECON 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grades of C
- 4) earned a minimum GPA of at least 2.5 for these Progression Courses
- 5) completed an approved *Curriculum Guide* and *Change of Major* Form with an Academic Advisor in the Belk College of Business Advising Center

Students who fail to declare their major on time will be prohibited from changing their major at a later date if their cumulative GPA falls below a 2.5. They will no longer meet the 2.5 GPA requirement to declare a major.

Students may attempt each of the Progression Courses, listed in (3) above, a **maximum of two times**. An attempt is defined as a course that is completed with a final grade of A, B, C, D, or F. Courses repeated under the Grade Replacement Policy are excluded from the GPA computation, but will count as an attempt. Students who do not meet the Progression Requirements are ineligible for continuation in the Belk College of Business.

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Department of Accounting

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<http://belkcollege.uncc.edu/accounting>

The Accounting program provides a learning environment in which students acquire conceptual and technical knowledge in the accounting and business areas as well as other essential capabilities for a successful accounting career. The undergraduate accounting curriculum is designed to enable students to:

- a) effectively develop, measure, analyze, validate, and communicate financial and other information
- b) understand the concepts and methods of economics, finance, marketing, quantitative methods, management, and information systems
- c) develop skills, competencies and learning capacities that are essential for a broad education



## Accreditation

The Accounting program is accredited by AACSB International, the Association to Advance Collegiate Schools of Business. AACSB International is the premier accrediting agency for bachelor's, master's, and doctoral degree programs in business administration and accounting. AACSB International is also the professional organization for management education.

## Career Opportunities

Graduates should have an excellent foundation for careers in business, accounting and professional accounting. A student who plans to become licensed as a certified public accountant in North Carolina must complete an additional 30 credit hours of academic study beyond the undergraduate accounting education. A student can meet this requirement by completing the Master of Accountancy program (MAcc). For details on the MAcc, please see the *UNC Charlotte Graduate Catalog*.

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## Bachelor of Science in Accounting

To be accepted into the B.S. in Accounting program and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### Business Core Courses (24 credit hours)

- BLAW 3150 Business Law I (3)
- COMM 3160 Business Communications (3)
- FINN 3120 Financial Management (3)
- INFO 3130 Management Information Systems (3)
- MGMT 3140 Management and Organizational Behavior (3)
- MGMT 3280 Strategic Management (3)
- MKTG 3110 Marketing Concepts (3)
- OPER 3100 Operations Management (3)

#### Major Courses (18 credit hours)

- ACCT 3311 Intermediate Financial Accounting I (3)
- ACCT 3312 Intermediate Financial Accounting II (3)
- ACCT 3330 Managerial Cost Accounting (3)
- ACCT 3340 Accounting Information Systems (3)
- ACCT 3350 Introduction to Auditing (3)
- ACCT 4220 Income Tax (3)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S. in Accounting, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an

attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Internship

Because the Department of Accounting is committed to experiential learning, it allows for Accounting majors to use one internship for academic credit. Permission of the Accounting Internship Coordinator is required before starting the internship. A minimum of ACCT 3312 (Intermediate Financial Accounting II) with a C or above and an overall GPA of at least 2.5 are required. The student may not have a current or prior work history with the internship company.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Business Administration

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<http://belkcollege.uncc.edu/>

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## Bachelor of Science in Business Administration: Business Administration with Concentration in Business Analytics

The Major in Business Administration with a Concentration in Business Analytics prepares graduates for jobs in quantitative fields in business and for graduate education in Data Science and Business Analytics, Mathematical Finance, and Economics. The focus of the concentration is on providing a sound grounding and understanding in quantitative analysis to prepare exceptions undergraduate students for master's degrees. The second semester of the Senior year will be designated for graduate coursework for Early Entry into the Professional Science Masters in Data Science and Business Analytics, Master of Science in Mathematical Finance, or Master of Science in Economics programs.

### Additional Admission Requirements

Admission to the Business Analytics concentration is competitive. To be accepted into the Major in Business Administration with a Concentration in Business Analytics, students must have an overall GPA of 2.5 in all University courses and completed the following Progression courses with a minimum 3.2 GPA (with no more than two grades of C):

ACCT 2121 Principles of Accounting I (3)  
ACCT 2122 Principles of Accounting II (3)  
BUSN 1101 Introduction to Business and Professional Development (3)  
ECON 2101 Principles of Economics - Macro (3)  
ECON 2102 Principles of Economics - Micro (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)

Students must also have completed the following math and programming core courses with a minimum 3.2 GPA (with no more than one grade of C):

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
ITCS 2116 C Programming (3)

Students should seek admission to the Major in

Business Administration with a Concentration in Business Analytics as freshmen to ensure appropriate advising and support.

## Degree Requirements

This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required for a B.S.B.A. degree in Business Administration with a Concentration in Business Analytics. Students may attempt each of these courses two times.

### Business Core Courses (15 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
MGMT 3140 Management in Organizational Behavior (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

### Major and Concentration Courses (23 hours)

BUSA 3090 Topics in Business Analytics (2)  
BUSA 3120 Financial Management with a Quantitative Focus (3)  
BUSA 3122 Investments with a Quantitative Focus (3)  
BUSA 3124 Intermediate Microeconomic and Macroeconomic Theory (3)  
BUSA 3233 Data and Information Management (3)  
BUSA 3288 Competitive Advantage with Marketing Analytics (3)  
ECON 3112 Econometrics (3)  
INFO 3236 Business Analytics (3)

## Degree Total = 120 Credit Hours

## Grade Requirements

Students are expected to earn 30 credits hours by the end of their Freshman year and 60 credit hours by the end of their Sophomore year. Latitude for the hours earned minimum requirement may be given for students who study abroad, hold an internship, etc. Students are also expected to maintain a GPA of 3.2 or higher for the duration of the degree program, as this is the required GPA for graduate studies. Students failing to meet the minimum GPA and/or hours earned requirements may be subject to dismissal from the major.

When a student repeats a course, both the old and the new grades are included in the major and overall GPA.

Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Master's Programs

Students majoring in Business Administration with a Concentration in Business Analytics have two options for accelerated entry into the Professional Science Master in Data Science and Business Analytics, Master of Science in Economics, or Master of Science in Mathematical Finance graduate programs. Through the accelerated track, high school seniors and undergraduate UNC Charlotte freshmen are encouraged to apply for admission to one of these three graduate programs and begin work toward a graduate degree before completion of the undergraduate degree. Students beyond their first year may apply for early entry into one of these graduate programs after completion of 75 or more hours of undergraduate coursework and begin work toward a graduate degree before completion of their undergraduate degree. Details for both options are below.

Students who do not meet the Accelerated or Early Entry graduate program requirements are able to apply to graduate programs upon graduation following the Graduate School's admission requirements.

Students who choose not to pursue an Accelerated or Early Entry graduate degree must enroll in a minimum of 12 credit hours to satisfy the major requirement of 120 credit hours. Several course options to round out the Major in Business Administration with a Concentration in Business Analytics include:

OPER 3203 Decision Modeling and Analysis (3)  
OPER 3208 Supply Chain Management (3)  
ECON 4112 Econometrics II (3)  
ECON 4117 Business and Economic Forecasting (3)

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## Accelerated Track: Professional Science Masters in Data Science and Business Analytics, Master of Science in Mathematical Finance, or Master of Science in Economics

Students may be accepted into the Accelerated Program as high school seniors and undergraduate

UNC Charlotte freshmen. Admissions requirements include:

- Minimum high school GPA of 3.75 (unweighted on a 4.0 scale)
- Minimum score of 1900 on SAT
- Online application for graduate admission
- Statement of Purpose for pursuing the Accelerated Master's Degree
- Three recommendations provided by a high school teacher and from a UNC Charlotte faculty member who taught the applicant in the Fall semester of the Freshman year

Students must maintain a strong academic record at both the undergraduate and graduate levels with a cumulative GPA minimum of 3.0. Students accepted into the Accelerated master's program are subject to the same policies that pertain to other matriculated graduate students.

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### **Early Entry: Professional Science Master in Data Science and Business Analytics, Master of Science in Mathematical Finance, or Master of Science in Economics**

Students may be accepted into the Early Entry Program at any time after completion of 75 credit hours of undergraduate work applicable to the Major in Business Administration with a Concentration in Business Analytics. Admission must be approved by the Program Director, and admission is conditional pending the awarding of the undergraduate degree.

In order to be accepted into the Professional Science Masters in Data Science and Business Analytics, Master of Science in Mathematical Finance, or Master of Science in Economics graduate programs, undergraduate students must have at least a 3.2 overall GPA and a 3.2 GPA in the major. Additionally, applicants must have taken the appropriate graduate standardized test and received acceptable test scores.

Students accepted into the Early Entry Program are subject to the same policies that pertain to other matriculated graduate students. Early Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.

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# **Department of Business Information Systems and Operations Management**

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<http://belkcollege.uncc.edu/bisom>

The Department of Business Information Systems and Operations Management (BISOM) offers majors in two dynamic disciplines toward the Bachelor of Science in Business Administration (B.S.B.A.) degree: (1) Management Information Systems (MGIS) and (2) Operations and Supply Chain Management (OSCM). In addition, the department offers two minors: one in MGIS and another in OSCM. The focus of these programs is development of information technology and operations managers who can enhance the productivity of the firm in a knowledge-driven economy. Both majors offer students an integrated background in the functional areas of business and focus on enhancing problem-solving and critical-thinking skills using current technology.

A Major in MGIS involves the application of information technology and analytical skills to the solution of organizational problems and opportunities for innovation. MGIS graduates are prepared for positions in the design, planning, development, implementation, and management of information systems. The Department of BISOM offers three concentrations for MGIS students: (1) a general MIS concentration, (2) a Business Intelligence and Analytics concentration, and (3) a Systems Analysis concentration. All three concentrations are designed to provide both technological and managerial knowledge relevant to the development and use of computer-based information systems. The MIS concentration prepares students for careers in the information systems function of organizations. The Business Analytics concentration is designed for students who are planning to pursue careers in analytics. Students planning to pursue a career as business analyst or project manager are encouraged to elect the Systems Analysis concentration.

A Major in OSCM focuses on the efficient use of resources to provide quality goods and services. OSCM enables students to pursue such careers in supply chain management, production planning, project management, quality assurance, and operations. Environments in which OSCM graduates

are in high demand include health care, government, manufacturing, and service industries.

#### **Who uses Management Information Systems?**

All businesses use MGIS to make forecasts, manage day-to-day operations, schedule personnel and equipment, manage quality and inventory, work with suppliers, and undertake projects. In addition, management depends on information systems to collect and analyze data to make decisions. Data on customers, suppliers, competitors, and others are the main inputs to decision making at all levels of the organization. While all organizations have information systems needs, some industries have much greater reliance on them. These include banking, insurance, large-scale retailing, and communications.

Skills for Management Information Systems majors include:

- Analytical problem solving
- Business process skills
- Communication skills
- Information technology skills
- Organizational skills

#### **Who uses Operations and Supply Chain Management?**

All businesses, including for profit and not-for-profit, manufacturing and services, use OSCM. These businesses have to make forecasts, manage day-to-day operations, schedule personnel and equipment, manage quality and inventory, work with suppliers, and undertake projects. While OSCM has always been important in manufacturing, service organizations are discovering the importance of being able to effectively and efficiently manage operations. Financial services and health care industries have been on the leading edge in using OSCM to improve operations. Company expenditures on programs such as Six Sigma, total quality management, and operational risk management are in the billions of dollars.

Skills for Operations and Supply Chain Management majors include:

- Analytical problem solving
- Communication skills
- Information technology skills
- Organizational skills
- Project management skills

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## **Bachelor of Science in Business Administration: Management Information Systems with Concentration in MIS**

### **Additional Admission Requirements**

To be accepted into the Management Information Systems major with a Concentration in MIS and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. The B.S.B.A. in Management Information Systems requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### **Degree Requirements**

#### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### **Business Core Courses (27 credit hours)**

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### **Major Courses (9 credit hours)**

INFO 3229 Business Data Communications and Information Security (3)  
INFO 3233 Data and Information Management (3)  
INFO 3234 Business Information Systems Analysis and Design (3)

#### **Restricted Elective Courses (6 credit hours)**

*Select two of the following:*

INFO 3000 Topics in Management Information Systems (3)  
INFO 3230 Enterprise Systems (3)  
INFO 3236 Business Analytics (3)  
INFO 3240 eBusiness Systems (3)  
INFO 3400 Management Information Systems Internship (3)  
INFO 3800 Directed Study (3)

OPER 3206 Quality Assurance and Management (3)

### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

### Grade Requirements

To obtain a B.S.B.A. in Management Information Systems with a Concentration in MIS, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major GPA and overall computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Business Administration: Management Information Systems with Concentration in Business Intelligence and Analytics

To be accepted into the Management Information Systems major with a Concentration in Business Intelligence and Analytics and to progress into the upper division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. The B.S.B.A. in Management Information Systems requires a minimum of 120 semester hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

### Business Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

### Major Courses (9 hours)

INFO 3230 Enterprise Systems (3)  
INFO 3233 Data and Information Management (3)  
INFO 3236 Business Analytics (3)

### Restricted Elective Courses (6 hours)

*Select two of the following courses, at least one of which is an INFO course:*

INFO 3000 Topics in Management Information Systems (3)  
INFO 3234 Business Information Systems Analysis and Design (3)  
INFO 3400 Management Information Systems Internship (3)  
INFO 3800 Directed Study (3)  
ECON 3112 Econometrics (3)  
MKTG 3229 Internet Marketing and Analytics (3)  
OPER 3203 Decision Modeling and Analysis (3)

### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

### Grade Requirements

To obtain a B.S.B.A. in Management Information Systems with a Concentration in Business Intelligence and Analytics, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major GPA and overall computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Business Administration: Management Information Systems with Concentration in Systems Analysis

To be accepted into the Management Information Systems major with a Concentration in Systems Analysis and to progress into the upper division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. The B.S.B.A. in Management Information Systems requires a minimum of 120 semester hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### Business Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (12 hours)

INFO 3231 Business Applications Development (3)  
INFO 3233 Data and Information Management (3)  
INFO 3234 Business Information Systems Analysis and Design (3)  
INFO 3240 eBusiness Systems (3)

#### Restricted Elective Courses (3 hours)

*Select one of the following:*

INFO 3229 Business Data Communications and Information Security (3)  
INFO 3230 Enterprise Systems (3)  
INFO 3236 Business Analytics (3)  
INFO 3400 Management Information Systems Internship (3)

INFO 3800 Directed Study (3)  
OPER 3204 Management of Service and Project Operations (3)

#### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

### Grade Requirements

To obtain a B.S.B.A. in Management Information Systems with a Concentration in Systems Analysis, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major GPA and overall computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Business Administration: Operations and Supply Chain Management

To be accepted into the Operations and Supply Chain Management major and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. The B.S.B.A. in Operations and Supply Chain Management requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)

ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (9 hours)

OPER 3203 Decision Modeling and Analysis (3)  
OPER 3204 Management of Service and Project Operations (3)  
OPER 3208 Supply Chain Management (3)

#### Restricted Elective Courses (6 hours)

*Select two of the following courses:*

ETIN 3133 Quality Control (3)  
INFO 3230 Enterprise Systems (3)  
INFO 3233 Data and Information Management (3)  
INFO 3236 Business Analytics (3)  
OPER 3000 Topics in Operations Management (3)  
OPER 3201 Operations Planning and Control (3)  
OPER 3206 Quality Assurance and Management (3)  
OPER 3400 Operations and Supply Chain Management Internship (3)  
OPER 3800 Directed Study (3)  
SEGR 3670 Total Quality Systems (3)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

#### Grade Requirements

To obtain a B.S.B.A. in Operations and Supply Chain Management, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Management Information Systems

The Minor in Management Information Systems is designed to provide students who have an interest in business information systems with a broad foundation for integrating information technology techniques and concepts into their major field of study in business. The demand for business graduates who are knowledgeable about designing, planning, developing, managing, and evaluating of information systems continues to increase as the economy moves from a manufacturing to an information base. The demand for MGIS professionals has increased dramatically during the past ten years and the trend is expected to continue. However, there is also an increase in the demand for management information systems professionals who have an in-depth understanding of the application domain and who can apply MGIS concepts in contexts which are more specific to their major. Thus, professionals with a primary interest and expertise in marketing, health care, banking, finance, accounting, and management are being sought by business application-area specialists.

The focus of the Minor in MGIS is to impart a framework for understanding MGIS and for utilizing its tools to the student's major. The minor will offer graduates a competitive advantage in terms of the types of positions for which they qualify. Graduates of the program will be able to act as technical liaisons between MGIS professionals and their "home" departments, as sales specialists for specialized software/applications systems, and as technical representatives.

The Minor in MGIS is directed not only at UNC Charlotte students majoring in business but also those majoring in other Colleges. The benefits of a Minor in MGIS include increased marketability in information-dependent firms in the public and private sector and the ability to leverage one's major discipline with state-of-the-art computing knowledge. A key benefit of taking MGIS courses is that students learn to effectively use technology in business settings.

#### Minor Requirements

To be accepted into the Minor in MGIS and to progress into the upper-division of the College, a student must present a minimum 2.5 GPA overall and Junior standing. A Minor in Management Information Systems requires a minimum 15 credit hours (five courses) for students who have taken the business prerequisites listed below. **Students may attempt each of these courses two times.**

#### Prerequisite Courses (18 hours)

ACCT 2121 Principles of Accounting I (3)

ACCT 2122 Principles of Accounting II (3)  
ECON 2101 Principles of Economics Macro (3)  
ECON 2102 Principles of Economics Micro (3)  
MATH 1120 Calculus (3)  
STAT 1220 Elements of Statistics I (3)

### MGIS Minor Courses (12 hours)

INFO 2130 Introduction to Business Computing (3)\*  
INFO 3130 Management Information Systems (3)  
INFO 3233 Data and Information Management (3)  
INFO 3234 Business Information Systems Analysis  
and Design (3)

### MGIS Minor Electives (3 hours)

Select one of the following courses:

ACCT 3340 Accounting Information Systems (3)  
INFO 3231 Business Application Development (3)  
INFO 3236 Business Analytics (3)  
INFO 3229 Business Data Communications and  
Information Security (3)  
INFO 3240 eBusiness Systems (3)  
MKTG 3229 Internet Marketing and Analytics (3)  
OPER 3203 Decision Modeling and Analysis (3)

*\*All Computer Science and Software and Information Systems majors will be exempted from INFO 2130. Other students with sufficient background can apply for Credit by Exam for INFO 2130.*

### Grade Requirements

To obtain a Minor in Management Information Systems, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the minor. Students must earn a minimum grade of C in all required minor courses. When a student repeats a course, both the old and new grades are included in the minor and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the minor and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

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## Minor in Operations and Supply Chain Management

The Minor in Operations and Supply Chain Management (OSCM) is designed to provide business and non-business students who have an interest in supply chain management, manufacturing, and service operations with a broad foundation of OSCM concepts and analytical methodology to be integrated into their major field of study.

The demand for graduates who are knowledgeable about designing, planning, evaluating, and managing supply chains, production, and service systems

continues to increase. There is also an increase in the demand of OSCM professionals who can define strategic and operational problems, collect relevant data, and apply advanced analytical techniques to improve the performance of firms. OSCM courses deal with supply chains, service systems, and manufacturing organizations. These areas examine the production function of an organization at a strategic level, as well as the plant and shop floor level. Areas included in the OSCM program include operations strategy, process analysis, product design, quality management, logistics management, procurement, supply chain management, project management, and waiting line management as well as analytical techniques such as optimization and simulation.

The minor offers graduates a competitive advantage in terms of the types of positions for which they qualify. The Minor in OSCM is directed not only at UNC Charlotte students majoring in business but also those majoring in other Colleges. The benefits of a minor in OSCM include increased marketability in the public and private sector and the ability to leverage one's major discipline with a solid understanding of one business area, increased analytical thinking, problem solving ability, and an understanding of internal and external environments of service and business organizations.

### Minor Requirements

To be accepted into the Minor in OSCM and to progress into the upper-division of the College, a student must present a minimum 2.5 GPA overall and Junior standing. A Minor in Operations and Supply Chain Management requires a minimum 15 credit hours (five courses) for students who have taken the business prerequisites listed below. **Students may attempt each of these courses two times.**

### Prerequisite Courses (21 hours)

ACCT 2121 Principles of Accounting I (3)  
ACCT 2122 Principles of Accounting II (3)  
ECON 2101 Principles of Economics Macro (3)  
ECON 2102 Principles of Economics Micro (3)  
INFO 2130 Introduction to Business Computing (3)\*  
MATH 1120 Calculus (3)  
STAT 1220 Elements of Statistics I (3)

### OSCM Minor Courses (9 hours)

MGMT 3140 Management and Organizational  
Behavior (3)  
OPER 3100 Operations Management (3)  
OPER 3208 Supply Chain Management (3)

### OSCM Minor Electives (6 hours)

Select two of the following courses, one of which must be an OPER course:  
INFO 3230 Enterprise Systems (3)

INFO 3233 Data and Information Management (3)  
INFO 3236 Business Analytics (3)  
OPER 3201 Operations Planning and Control (3)  
OPER 3203 Decision Modeling and Analysis (3)  
OPER 3204 Management of Service and Project  
Operations (3)  
OPER 3206 Quality Assurance and Management (3)

*\*All Computer Science and Software and Information Systems majors will be exempted from INFO 2130. Other students with sufficient background can apply for Credit by Exam for INFO 2130.*

### Grade Requirements

To obtain a Minor in Operations and Supply Chain Management, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the minor. Students must earn a minimum grade of C in all required minor courses. When a student repeats a course, both the old and new grades are included in the minor and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the minor and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

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# Department of Economics

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<http://belkcollege.uncc.edu/economics>

The study of Economics offers students a problem-solving discipline to foster their intellectual and career development. It provides students with a balanced and broad educational background and prepares them to choose from a wide range of career alternatives.

The Economics program explores the economic decisions of individuals, businesses, governments, and other institutions. It examines the nature of economic activity, why it takes place, and how it affects everyone's lives. The program includes elective courses that enable students to tailor their educational program to meet personal needs and interests. The study of economics also helps students develop a way of thinking that is logical and rigorous. It provides decision-making tools that they can apply to personal as well as business decisions and use to address the many economic decisions they will face in the future.

### Degree Programs

The Department of Economics offers two programs leading to the Bachelor of Science degree. Students who plan to pursue careers in business-related fields such as banking, finance, and international commerce, or who plan to enter an MBA program, are encouraged to elect the Major in Economics with a Business Concentration program. Students planning to pursue a career in education or the social sciences, enter graduate school in economics, or attend law school are encouraged to pursue the Major in Economics with a Liberal Arts Concentration.

### Prerequisite Courses

All majors in Economics must complete COMM 3160 (Business Communications) prior to registering for any 4000-level Economics course. Students transferring into the Economics program as a Senior must complete COMM 3160 their first semester in the program.

It is recommended that students who plan graduate work in economics complete MATH 1241, ECON 4100, and, as available, ECON 4112 and ECON 4117. Also, they should consider additional work in mathematics but should consult with an Academic Advisor concerning specific courses.

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# Bachelor of Science in Economics with Concentration in Business

## Additional Admission Requirements

To be accepted into the Economics major with the Business Concentration and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

### Business Core Courses (6 hours)

*Select two of the following:*

- BLAW 3150 Business Law I (3)
- INFO 3130 Management Information Systems (3)
- MGMT 3140 Management and Organizational Behavior (3)
- MKTG 3110 Marketing Concepts (3)
- OPER 3100 Operations Management (3)

### Major Courses (24 hours)

- ECON 3112 Econometrics (3)
- ECON 3122 Intermediate Microeconomics (3)
- ECON 3123 Intermediate Macroeconomics (3)
- ECON 3125 Managerial Economics (3)
- ECON 4200 Senior Seminar (3)
- FINN 3120 Financial Management (3)
- COMM 3160 Business Communications (3)

*Plus one of the following Quantitative Skills Courses:*

- ECON 4100 Mathematical Economics (3)
- ECON 4112 Econometrics II (3)
- ECON 4117 Business and Economic Forecasting (3)
- INFO 3236 Business Analytics (3)

### Restricted Elective Courses (9 hours)

Select three ECON Electives from the 3000- or 4000-level, excluding the courses listed above.

### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

## Grade Requirements

To obtain a B.S. in Economics with the Business Concentration, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Bachelor of Science in Economics with Concentration in Liberal Arts

## Additional Admission Requirements

To be accepted into the Economics major with the Liberal Arts Concentration and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ECONOMICS - LIBERAL ARTS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the College of Business.

## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of the courses two times.**

### Major Courses (15 credit hours)

- ECON 3112 Econometrics (3)
- ECON 3122 Intermediate Microeconomics (3)
- ECON 3123 Intermediate Macroeconomics (3)
- ECON 4200 Senior Seminar (3)
- COMM 3160 Business Communications (3)

### Restricted Elective Courses (12 hours)

Select four ECON Electives from the 3000- or 4000-level, excluding the courses listed above.

### Liberal Arts Minor Courses (15-21 hours)

Completion of a minor offered outside the Belk College of Business from one of the following disciplines: Actuarial Mathematics, Africana Studies, American Studies, Anthropology, Criminal Justice, Earth Science, Geography, Gerontology, Health Sciences, History, International Studies, Mathematics, Philosophy, Political Science, Psychology, Social Work, Sociology, Urban Studies, or Women's and Gender Studies. Students may choose a minor not listed above with the approval of their Academic Advisor. Credit hours vary dependent on the minor requirements.

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S. in Economics with the Liberal Arts Concentration, students must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all Progression, Core, and Major Electives. When students repeat a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Economics

To be accepted into the Minor in Economics and to progress into the upper-division of the College, students must meet the following requirements:

- A minimum 2.5 cumulative GPA
- Junior or Senior standing
- A grade of C or above in all prerequisites to required courses in the minor, including:
  - ECON 2101 Principles of Economics-Macro (3)
  - ECON 2102 Principles of Economics-Micro (3)
  - MATH 1120 Calculus (3)  
or MATH 1241 Calculus (3)
  - STAT 1220 Elements of Statistics I – BUSN (3)
  - INFO 2130 Introduction to Business Computing (3)\*

\*Required only for ECON 3112 and ECON 3125.

## Minor Requirements

A Minor in Economics requires 18 credit hours of economics. *Students may attempt each of the courses in the minor two times.*

### Required Courses (9 hours)

ECON 2101 Principles of Economics Macro (3)  
ECON 2102 Principles of Economics Micro (3)  
ECON 3122 Intermediate Microeconomics (3)  
or ECON 3125 Managerial Economics (3)

### Electives (9 hours)

Select three ECON Electives from the 3000- or 4000-level, excluding the courses listed above.

### Grade Requirements

To obtain a Minor in Economics, students must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the minor. Students must earn a minimum grade of C in all required and elective minor courses and their prerequisite courses. When a student repeats a course, both the old and new grades are included in the minor GPA. Courses repeated under the Grade Replacement Policy are excluded from the major GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

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# Department of Finance

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<http://belkcollege.uncc.edu/finance>

The Department of Finance prepares students for financial leadership within organizations and provides them with an understanding of the legal environment in which these organizations operate. In the Department's various programs, students acquire knowledge that enables them to understand:

- a) the concepts, processes, and institutions involved in planning for, acquiring and allocating capital with respect to modern business organizations
- b) the economic and legal environment of organizations, and the myriad social and political influences on business
- c) the concepts and methods of economics, accounting, mathematics, management, information systems, and business law

## Degree Programs

The Department of Finance offers three concentrations leading to the Bachelor of Science in Business Administration (B.S.B.A.) degree. Students who plan to pursue careers in business-related fields such as banking, finance, and international commerce, or who plan to enter an MBA program, are encouraged to elect the Finance concentration. Students planning to pursue a career in risk management and insurance are encouraged to pursue the program with the Risk Management and Insurance concentration.

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## Bachelor of Science in Business Administration: Finance with Concentration in Finance

### Additional Admission Requirements

To be accepted into the Finance major with a Concentration in Finance and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General

Education program.

The following courses are required for a B.S.B.A. degree in Finance with a Concentration in Finance. **Students may attempt each of these courses two times.**

#### Business Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (6 hours)

FINN 3222 Investments (3)  
FINN 3226 Financial Theory and Practice (3)

#### Restricted Elective Courses (9 hours)

*Select 2-3 of the following:*

BLAW 3250 Business Law II (3)  
FINN 3221 Financial Institutions and Markets (3)  
FINN 3223 International Financial Management (3)  
FINN 3224 Applied Business Finance (3)  
FINN 3225 Commercial Bank Management (3)  
FINN 3261 Real Estate Finance (3)  
FINN 3271 Principles of Risk Management and Insurance (3)  
FINN 3272 Life Insurance and Professional Financial Planning (3)  
FINN 4159 Student Managed Investment Fund II (3)

*Select one of the following courses if only two courses selected above:*

ACCT 3311 Intermediate Financial Accounting I (3)  
ECON 3112 Econometrics (3)  
ECON 3115 Money and Banking (3)  
FINN 3800 Directed Study (3) (*Chair approval required*)  
OPER 3204 Management of Service and Project Operations (3)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S.B.A. in Finance with a Finance Concentration, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major

Courses. When a student repeats a course, both the old and the new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this +section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Business Administration: Finance with Joint Concentration in Finance/Accounting

### Additional Admission Requirements

To be accepted into the Finance major with a Joint Concentration in Finance/Accounting and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required for a B.S.B.A. degree in Finance with a joint Finance/Accounting Concentration. **Students may attempt each of these courses two times.**

#### Business Core Courses (27 credit hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (12 credit hours)

FINN 3222 Investments (3)  
FINN 3226 Financial Theory and Practice (3)  
ACCT 3311 Intermediate Financial Accounting I (3)  
ACCT 3312 Intermediate Financial Accounting II (3)

#### Restricted Elective Courses (6 credit hours)

*Select two of the following:*

ACCT 3330 Managerial Cost Accounting (3)  
ACCT 3350 Introduction to Auditing (3)  
ACCT 3380 Fraud Examination (3)  
ACCT 4220 Income Tax (3)  
BLAW 3250 Business Law II (3)  
ECON 3112 Econometrics (3)  
FINN 3221 Financial Institutions and Markets (3)  
FINN 3223 International Financial Management (3)  
FINN 3224 Applied Business Finance (3)  
FINN 3225 Commercial Bank Management (3)  
FINN 3800 Directed Study (3) (*Department Chair approval required*)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S.B.A. in Finance with a Joint Concentration in Finance/Accounting, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and the new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Business Administration: Finance with Concentration in Risk Management and Insurance

### Additional Admission Requirements

To be accepted into the Finance major with a Concentration in Risk Management and Insurance and

to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Student must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required for a B.S.B.A. degree in Finance with a Risk Management and Insurance Concentration. **Students may attempt each of these courses two times.**

### Business Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

### Major Courses (12 hours)

FINN 3271 Principles of Risk Management and Insurance (3)  
FINN 3272 Life Insurance and Professional Financial Planning (3)  
FINN 3273 Property and Casualty (3)  
FINN 3275 Advanced Risk Management (3)

### Restricted Elective Courses (3 hours)

*Select one of the following:*

FINN 3222 Investments (3)  
FINN 3276 Employee Benefits (3)  
FINN 3277 Legal Aspects of Insurance (3)  
FINN 3800 Directed Study (3) (*Department Chair approval required*)  
MGMT 3277 Entrepreneurship (3)  
MKTG 3226 Sales and Negotiations (3)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Grade Requirements

To obtain a B.S.B.A. in Finance with a Concentration in Risk Management and Insurance, a student must meet the University requirements of a GPA of at least 2.0

overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and the new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Global Business Studies

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<http://globalbusiness.uncc.edu/>

Global citizenship is a core value of the Belk College of Business. The Office of Global Business Studies within



the College was established in 2004 to institute new programs, collaborations, and challenges to its stakeholders.

Because business success requires a global perspective, the Belk College of Business offers the B.S.B.A. in International Business and the Minor in International

Management.

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## Bachelor of Science in Business Administration: International Business

The primary objective of the International Business major is to provide an understanding of the importance of a global perspective on the part of business managers. The major provides an integrated framework for the study of the market environment in which international business firms operate and the impact of those environments upon managerial decision making. Possible careers may result in a variety of business and government sectors—either domestically or abroad.

### Additional Admission Requirements

To be accepted into the International Business major and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.** International Business majors are also required to study abroad.

#### Business Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (15 hours)

ECON 3171 International Business Economics (3)  
FINN 3223 International Financial Management (3)  
MGMT 3274 International Business Processes and Problems (3)  
MGMT 3275 International Management (3)  
MKTG 3231 Global Marketing Management (3)

#### Restricted Elective Courses (3 hours)

*Select one of the following\*:*

AFRS 3265 African Economic Development (3)  
ANTH 4120 Intercultural Communications (3)  
GEOG 3105 Geography of the Global Economy (3)  
IBUS 3400 International Business Internship (3)\*\*  
POLS 3151 International Political Economy (3)  
POLS 3152 International Organizations (3)  
POLS 3153 European Union (3)  
POLS 3155 Latin American Political Economy (3)  
POLS 3165 East Asia in World Affairs (3)  
SPAN 3029 Cultural Dimension of Doing Business in Spanish-Speaking Countries (3)

*\*Other courses may be approved by the student's Academic Advisor.*

*\*\*The internship may be satisfied by working at least 150 hours at a company or other organization involved in international business. The work program and the company/association must be pre-approved by the Associate Director of the Student Center for Professional Development. At least 80% of the student's work must be international in nature. While the internship experience is not required to be performed outside the U.S., it is strongly encouraged.*

#### Unrestricted Elective Courses

As needed.

#### Language Requirement

Students must attain competency in a second language. This can be fulfilled two ways:

- 1.) Complete at least six semesters of course work in a foreign language. Students must take at least four language courses above the elementary level, including two courses at the advanced level (3000-level or above). It is recommended that 2201, 2210 (or 2202 if 2210 is not offered), 3201, and 3202—or their course equivalents—be taken.
- 2.) Demonstrate proficiency in a foreign language at the 3202-level through a test administered by the Department of Languages and Culture Studies. Students are strongly encouraged to enhance their language skills by earning either a Certificate in Business Language (CBL) or a minor in their language of study. Those who do will have this extra effort recognized by the designation of “Language Intensive Option in Spanish” (or French, German, Japanese, etc.) on their final transcript.

### Study Abroad (3 hours minimum)

This requirement may be satisfied by participating in an approved Study Abroad program outside of the U.S. and Canada during the Fall, Spring, or Summer semester for a minimum period of three weeks, while completing at least three credit hours of coursework.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S.B.A. in International Business, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major GPA and overall computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in International Management

The Minor in International Management is designed to provide students who have an interest in global business with an opportunity to enhance their knowledge of international management. Topic areas include the international business environment, including economic trends, politics, and cultural

variations and norms; managerial issues, including all functions of a typical multinational enterprise such as organization, production, marketing, human resources, political risk assessment, and negotiation; and international finance. The Minor in International Management offers students a competitive advantage in career opportunities across a broad spectrum of business and government sectors both domestically and globally. The Minor in International Management is only open to students majoring in the Belk College of Business.

### Minor Requirements

To be accepted into the Minor in International Management and to progress into the upper-division of the College, students must present a minimum 2.5 cumulative GPA and must be of at least Junior standing. A Minor in International Management requires 15 credit hours. **Students may attempt each of the courses in the minor two times.**

### Required Courses (12 hours)

- MGMT 3140 Management and Organizational Behavior (3)
- MGMT 3274 International Business Processes and Problems (3)
- MGMT 3275 International Management (3)
- Study Abroad Experience (One course with a minimum of 3 credit hours)

### Elective Course (3 hours)

*Select one of the following courses:*

- ECON 3171 International Business Economics (3)
- FINN 3223 International Financial Management (3)
- MKTG 3231 Global Marketing Management (3)

### Grade Requirements

To obtain a Minor in International Management, students must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the minor. Students must earn a minimum grade of C in all required minor courses within two attempts. When students repeat a course, both the old and new grades are included in the minor GPA. Courses repeated under the Grade Replacement Policy are excluded from the major GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements.

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# Department of Management

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<http://belkcollege.uncc.edu/management>

A program of study in the Department of Management leads to a Bachelor of Science in Business Administration (B.S.B.A.) degree with a Major in Management. This major is designed to teach students to plan, organize, lead, and control business activities in both the public and private sectors. Students develop skills in decision making, leadership, motivation, problem solving, and teamwork.

Students pursuing the management major must select one of two concentrations: Talent Management or Organizational Management. The former concentration is designed for students interested in “the management of human resources or talent,” and the latter concentration is designed for students interested in “general or strategic management.”

Courses in this major include the following topics: management and organizational behavior, managerial ethics, decision-making techniques, managing human resources and developing communication skills that make for effective leadership. The objectives of the major are to provide each student with conceptual tools and develop managerial skills that support leadership in a variety of organizations.

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## Bachelor of Science in Business Administration: Management with Concentration in Organizational Management

### Additional Admission Requirements

To be accepted into the Management major with a Concentration in Organizational Management and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### Business Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (6 hours)

MGMT 3282 Managerial Ethics (3)  
MGMT 3287 Managerial Leadership (3)

#### Organizational Management Courses (9 hours)

MGMT 3260 Managerial Communication (3)  
MGMT 3275 International Management (3)  
MGMT 3277 Entrepreneurship (3)

#### Restricted Elective Courses (3 hours)

*Select one of the following:*

ECON 3106 Labor Economics (3)  
FINN 3276 Employee Benefits (3)  
MGMT 3000 Topics in Management (3)  
MGMT 3241 Acquiring and Maintaining Talent (3)  
MGMT 3242 Developing and Retaining Talent (3)  
MGMT 3243 Employment Law (3)  
MGMT 3274 International Business Processes and Problems (3)  
MGMT 3400 Management Internship (3)  
MGMT 3800 Directed Study (3) (*Department Chair approval required*)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S.B.A. in Management with a Concentration in Organizational Management, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at <http://academics.uncc.edu>.

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# Bachelor of Science in Business Administration: Management with Concentration in Talent Management

## Additional Admission Requirements

To be accepted into the Management major with a Concentration in Talent Management, and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the PRE-ACCOUNTING, PRE-BUSINESS, and PRE-ECONOMICS section. This major requires a minimum of 120 credit hours. Students must complete the General Education Requirements of the University and the Progression, Core, and Major Requirements of the Belk College of Business.

## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

### Business Core Courses (27 credit hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

### Major Courses (6 credit hours)

MGMT 3282 Managerial Ethics (3)  
MGMT 3287 Managerial Leadership (3)

### Major Talent Management Courses (9 credit hours)

MGMT 3241 Acquiring and Maintaining Talent (3)  
MGMT 3242 Developing and Retaining Talent (3)  
MGMT 3243 Employment Law (3)

### Restricted Elective Courses (3 credit hours)

Select *one* of the following:

ECON 3106 Labor Economics (3)

FINN 3276 Employee Benefits (3)  
MGMT 3000 Topics in Management (3)  
MGMT 3260 Managerial Communication (3)  
MGMT 3274 International Business Processes and Problems (3)  
MGMT 3275 International Management (3)  
MGMT 3277 Entrepreneurship (3)  
MGMT 3400 Management Internship (3)  
MGMT 3800 Directed Study (3) (*Department Chair approval required*)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Grade Requirements

To obtain a B.S.B.A. in Management with a Concentration in Talent Management, students must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all required Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Department of Marketing

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<http://belkcollege.uncc.edu/marketing>

A program of study in the Department of Marketing leads to a Bachelor of Science in Business Administration (B.S.B.A.) degree with a Major in Marketing. This major offers a curriculum suitable for students who are (1) planning to operate their own businesses and want to know how to utilize marketing, (2) preparing for positions in small to large organizations where specialized skills in marketing are required, and (3) seeking a strong marketing background at the undergraduate level prior to undertaking graduate work.

The study of marketing provides students with an opportunity to prepare for careers including marketing management, product management, sales, advertising and promotions management, online marketing, marketing research, retailing, and international marketing. The Department of Marketing offers two different concentrations for marketing majors: a general "Marketing" concentration, and the "Marketing Analytics" concentration. The former concentration is designed for students with an interest in "strategic and behavioral" marketing, while the latter concentration is designed for students with an interest in "quantitative" marketing.

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## Bachelor of Science in Business Administration: Marketing with Concentration in Marketing

### Additional Admission Requirements

To be accepted into the Marketing major with a Concentration in Marketing and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the Pre-Accounting, Pre-Business, and Pre-Economics section. The B.S. in Business Administration (B.S.B.A.) degree requires a minimum of 120 total credit hours. The Marketing major requires a minimum of 45 credit hours. These include 27 credit hours of Core course requirements and 18 credit hours of Major course requirements. Students must complete the General Education Requirements of the University and the Progression (24 credit hours), Core (27 credit hours), and Major (18 credit hours) requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### Business Core Courses (27 hours)

BLAW 3150 Business Law I  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Course (3 hours)

MKTG 3250 Marketing Strategy Consultancy (3)

#### Restricted Elective Courses (15 hours)

*Select 5 of the following:*

MKTG 3000 Topics in Marketing (3)  
MKTG 3221 Consumer Behavior and Strategy (3)  
MKTG 3222 Marketing Analysis and Decision Making (3)  
MKTG 3223 Creativity and Innovation in Marketing (3)  
MKTG 3224 Branding and Product Strategy (3)  
MKTG 3225 Advertising and Promotion (3)  
MKTG 3226 Sales and Negotiations (3)  
MKTG 3227 Retailing and Logistics Management (3)  
MKTG 3228 Marketing Analytics (3)  
MKTG 3229 Internet Marketing and Analytics (3)  
MKTG 3230 Social Media Marketing (3)  
MKTG 3231 Global Marketing Management (3)  
MKTG 3232 Sports Marketing (3)  
MKTG 3400 Marketing Internship (3)  
MKTG 3800 Directed Study (3)

#### Optional Supporting Courses

The following courses are optional, and offered to support students in the Marketing major with a Concentration in Marketing.

MKTG 2210 Marketing Careers (2)  
MKTG 3260 AMA Professional Marketing Certification (1)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S.B.A. in Marketing with a Concentration

in Marketing, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

### Internship

Because the Department of Marketing is committed to experiential learning, it provides for Marketing majors to use one internship for academic credit. A proposal must be submitted and approved by the Assistant Director of the Student Center for Professional Development prior to starting the internship. A minimum of MKTG 3110 (Marketing Concepts) with a C or above, an overall GPA of at least 2.5, and completion of at least two Marketing Electives are required. The student may not have a current or prior work history with the internship company.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at <http://academics.uncc.edu>.

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## Bachelor of Science in Business Administration: Marketing with Concentration in Marketing Analytics

### Additional Admission Requirements

To be accepted into the Marketing major with a Concentration in Marketing Analytics and to progress into the upper-division of the College, a student must meet the Progression Requirements as previously stated in the Pre-Accounting, Pre-Business, and Pre-Economics section. The B.S. in Business Administration (B.S.B.A.) degree requires a minimum of 120 total credit hours. The Marketing major requires a minimum of 45 credit hours. These include 27 credit hours of Core course requirements and 18 credit hours of Major course requirements. Students must complete the General Education Requirements of the University and the Progression (24 credit hours), Core (27 credit hours), and Major (18 credit hours) requirements of the Belk College of Business.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

The following courses are required. **Students may attempt each of these courses two times.**

#### Core Courses (27 hours)

BLAW 3150 Business Law I (3)  
COMM 3160 Business Communications (3)  
ECON 3125 Managerial Economics (3)  
FINN 3120 Financial Management (3)  
INFO 3130 Management Information Systems (3)  
MGMT 3140 Management and Organizational Behavior (3)  
MGMT 3280 Strategic Management (3)  
MKTG 3110 Marketing Concepts (3)  
OPER 3100 Operations Management (3)

#### Major Courses (3 hours)

*Select one of the following:*

MKTG 3250 Marketing Strategy Consultancy (3)  
MKTG 3251 Marketing Analytics Consultancy (3)

#### Marketing Analytics Courses (9 hours)

*Select three of the following:*

MKTG 3222 Marketing Analysis and Decision Making (3)  
MKTG 3228 Marketing Analytics (3)  
MKTG 3229 Internet Marketing and Analytics (3)  
MKTG 3234 Customer Data Mining and Marketing Metrics (3)  
INFO 3233 Data and Information Management (3)  
INFO 3236 Business Analytics (3)

#### Restricted Elective Courses (6 hours)

*Select two of the following:*

MKTG 3000 Topics in Marketing (3)  
MKTG 3221 Consumer Behavior and Strategy (3)  
MKTG 3223 Creativity and Innovation in Marketing (3)  
MKTG 3224 Branding and Product Strategy (3)  
MKTG 3225 Advertising and Promotion (3)  
MKTG 3226 Sales and Negotiations (3)  
MKTG 3227 Retailing and Logistics Management (3)  
MKTG 3230 Social Media Marketing (3)  
MKTG 3231 Global Marketing Management (3)  
MKTG 3232 Sports Marketing (3)  
MKTG 3400 Marketing Internship (3)  
MKTG 3800 Directed Study (3)

#### Optional Supporting Courses

The following courses are optional, and offered to support students in the Marketing major with a Concentration in Marketing Analytics.

MKTG 2210 Marketing Careers (2)  
MKTG 3260 AMA Professional Marketing Certification (1)

## Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

To obtain a B.S.B.A. in Marketing with a Concentration in Marketing Analytics, a student must meet the University requirements of a GPA of at least 2.0 overall and in the courses for the major. Students must earn a minimum grade of C in all Progression, Core, and Major Courses. When a student repeats a course, both the old and new grades are included in the major and overall GPA. Courses repeated under the Grade Replacement Policy are excluded from the major and overall GPA computation. However, this repeated course does count as an attempt. Students must also meet the Belk College of Business residency requirements as described at the beginning of this section.

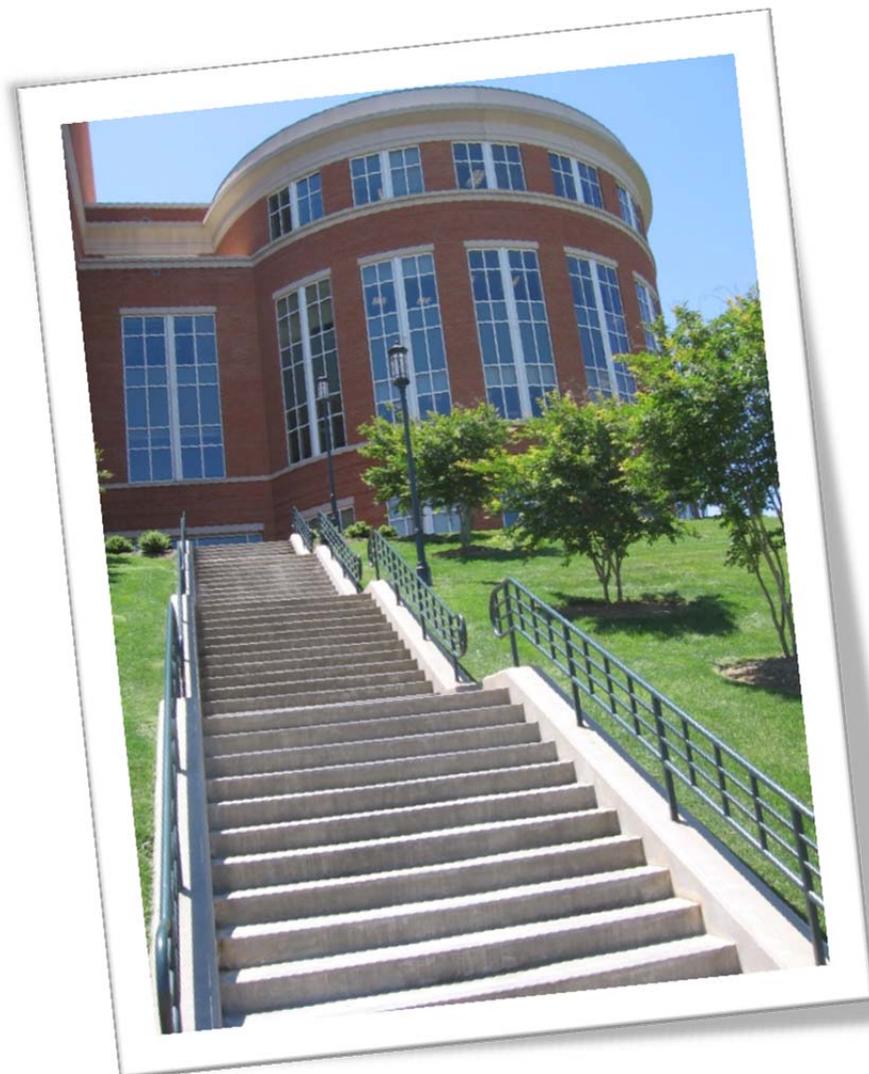
### Internship

Because the Department of Marketing is committed to experiential learning, it provides for Marketing majors to use one internship for academic credit. A proposal must be submitted and approved by the Assistant Director of the Student Center for Professional Development prior to starting the internship. A minimum of MKTG 3110 (Marketing Concepts) with a C or above, an overall GPA of at least 2.5, and completion of at least two Marketing Electives are required. The student may not have a current or prior work history with the internship company.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at <http://academics.uncc.edu>.

# *College of* Computing and Informatics



# College of Computing and Informatics

<http://cci.uncc.edu>

The University of North Carolina at Charlotte's College of Computing and Informatics (CCI) is part of a dynamic and exciting, educational, and research institution that combines the knowledge and expertise of multidisciplinary faculty, industry professionals, and students. The CCI was formed in 2000 as the College of Information Technology, with the mission of educating information specialists, conducting leading-edge research, and partnering with area businesses of great importance to the Charlotte community and the University. It was renamed the College of Computing and Informatics in 2006 in an effort to reflect the College's commitment to maintain relevancy with the ever-changing world of information technology that impacts all of our lives on a daily basis.

The College of Computing and Informatics consists of three departments:

- **Department of Bioinformatics and Genomics**
- **Department of Computer Science**
- **Department of Software and Information Systems**

The three primary missions of the CCI are:

- to educate and prepare the computing and informatics professionals of tomorrow
- to conduct leading-edge research in enterprise information systems
- to partner with area industry to develop computing and informatics solutions

## Degree Programs

With educational programs rooted in a strong foundation of research, the CCI combines the talents of on- and off-campus partners in achieving its mission. Academic programs include Bachelor's, Master's, and Ph.D. degree programs in computer science, software and information systems, information technology, and bioinformatics and computational biology. Committed to the concept of life-long learning, the College also offers undergraduate and graduate certificate programs.

The College offers a single entry to the Bachelor of Arts in Computer Science and a Bachelor of Science in Computer Science with the curriculum for specific concentrations in the Departments of Computer Science, Software and Information Systems, and Bioinformatics and Genomics.

A key component of all CCI academic programs is the team interaction between students, faculty, and community partners. Through their involvement in real-world projects, students apply what they learn, thus, giving them practical experience as they help businesses solve computing and informatics challenges.

### Major Programs

- Bachelor of Arts in Computer Science
- Bachelor of Science in Computer Science

### Minors Programs

- Bioinformatics and Genomics
- Computer Science
- Software and Information Systems

### Certificate Programs

- Game Design and Development

## Additional Programs and Opportunities

### Experiential Learning and Service Opportunities

Students are encouraged to participate in professional work experiences in support of their academic and career development through the cooperative education, 49ership, internship, and service programs offered to them. The College works with the University Career Center to expand experiential learning offerings to enable more students to graduate with career-related experience. For more information about experiential learning opportunities, please see the

University Career Center section in this *Catalog*.

### **Cooperative Education Program**

By participating in the Cooperative Education program, students in Computer Science and in Software & Information Systems programs may pursue their education along with alternating semesters of full-time work experiences so that they may be better prepared to enter their chosen professional career. Interested students should contact the University Career Center for more information.

### **Honors Program**

The goal of the Honors Program in Computing and Informatics is to identify creative, imaginative, and exceptional undergraduate CCI students and develop their potential through encouragement, opportunity, and recognition. By providing such students with the benefits of smaller classes and a more challenging curriculum, CCI hopes to impact retention of majors, entry into our graduate programs, and have talented undergraduate students contribute to and participate in faculty research.

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# Department of Bioinformatics and Genomics

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<http://bioinformatics.uncc.edu>

Research within the Department of Bioinformatics and Genomics encompasses both Bioinformatics and Computational Biology, as defined by the National Institutes of Health (NIH). Our mission is to promote the development, use, and commercialization of novel computational approaches to help solve important biological problems, and to provide training in the science and technology that underlies them.

The Department of Bioinformatics and Genomics offers a minor for undergraduate students. Designed to introduce students to the collection, informatics analysis and interpretation of data derived from genomic and biological macromolecular investigations, this minor field of study will provide students with a foundation of understanding and the computing skill necessary to communicate in the increasingly data-centric life sciences. In addition to gaining first-hand experience with current technologies for high-throughput data generation, students will receive training in up-to-date methods for data handling and interpretation while developing an understanding of critical issues in bioinformatics research design, statistical data analysis, and the application of genomics domain knowledge.

In addition to the Minor in Bioinformatics and Genomics, the department offers graduate programs and degrees. See the *UNC Charlotte Graduate Catalog* for details.

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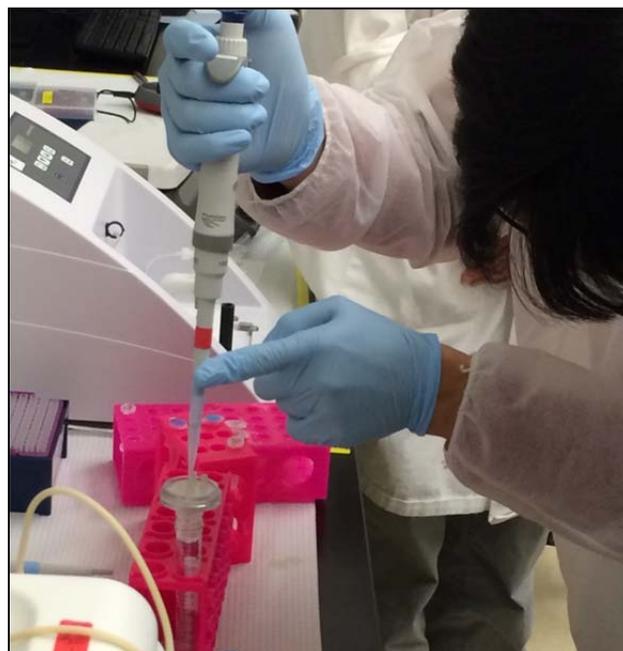
## Minor in Bioinformatics and Genomics

Designed to introduce students to the collection, informatics analysis and interpretation of data derived from genomic and biological macromolecular investigations, the Minor in Bioinformatics and Genomics provides students with a foundation of understanding and the computing skill necessary to communicate in the increasingly data-centric life sciences. In addition to gaining first-hand experience with current technologies for high-throughput data generation, students will receive training in up-to-date methods for data handling and interpretation while developing an understanding of critical issues in bioinformatics research design, statistical data analysis, and the application of genomics domain knowledge.

## Program Requirements

The Minor in Bioinformatics and Genomics requires 15 credit hours consisting of the following required courses:

- BINF 1101 Introduction to Bioinformatics and Genomics (4)
- BINF 1101L Introduction to Bioinformatics and Genomics Lab (0)
- BINF 2111 Introduction to Bioinformatics Computing (4)
- BINF 2111L Introduction to Bioinformatics Computing Lab (0)
- BINF 3101 Sequence Analysis (3)
- BINF 3101L Sequence Analysis (0)
- BINF 3121 Statistics for Bioinformatics (3)
- BINF 4600 Bioinformatics and Genomics Seminar (1)



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# Department of Computer Science

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<http://cs.uncc.edu>

Computer Science is the cornerstone of modern information technology. It has revolutionized how we learn, communicate, entertain, conduct business, perform research, and practice medicine. This information revolution is just beginning and is providing computer scientists with nearly limitless opportunities to make satisfying and enriching contributions to society. We can think of the work of computer scientists as falling into three categories:

- 1.) They design and implement software. Computer scientists take on challenging programming jobs. They also supervise other programmers, keeping them aware of new approaches.
- 2.) They devise new ways to use computers. Progress in the CS areas of networking, database, and human-computer-interface enabled the development of the World Wide Web. Now, researchers are working to make robots to be practical aides that demonstrate intelligence, are using databases to create new knowledge, and are using computers to help decipher the secrets of our DNA.
- 3.) They develop effective ways to solve computing problems. For example, computer scientists develop the best possible ways to store information in databases, send data over networks, and display complex images. Their theoretical background allows them to determine the best performance possible, and their study of algorithms helps them develop new approaches that provide better performance. Computer science spans the range from theory to programming. While other disciplines can produce graduates better prepared for specific jobs, computer science offers a comprehensive foundation that permits graduates to adapt to new technologies and new ideas.

The Department of Computer Science offers a wide variety of programs to match the diverse requirements of employers. The computer science major may pursue a program leading to one of four degrees: Bachelor of Arts, Bachelor of Science, or Master of Science in Computer Science; or Ph.D. in Computing and Information Systems. (See the *UNC Charlotte Graduate Catalog* for information on the M.S. and Ph.D. degrees.) Students are prepared for their profession through a comprehensive program of

courses and research opportunities in departmental state-of-the-art computing labs.

## Grade Requirements

The GPA requirement for all Computer Science undergraduate degree programs is 2.0 or above in each of the following three categories: (1) all courses applied to the degree, (2) all courses in the major, and (3) all upper-division courses in the major.



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## Bachelor of Science in Computer Science

The Bachelor of Science program offers a broad core of computing subjects and allows the student to select a concentration for an in-depth study in Computing Systems, Game Design and Development, Graphics and Visualization, Intelligent Systems, or Networking and Distributed Computing. This program prepares students to continue their education in master's or doctoral programs, or to enter the business world as a computer scientist.

## Degree Requirements

The B.S. in Computer Science requires 120 credit hours of coursework.

### Core Courses (58 hours)

- ITCS 1212 Introduction to Computer Science I (4)
- ITCS 1212L Programming Lab I (0)
- ITCS 1213 Introduction to Computer Science II (4)
- ITCS 1213L Programming Lab II (0)
- ITCS 1600 Computing Professionals (1)
- ITCS 2175 Logic and Algorithms (3)
- ITCS 2214 Data Structures (3)
- ITCS 2215 Design and Analysis of Algorithms (3)
- ITCS 3146 Operating Systems and Networking (3)
- ITCS 3155 Software Engineering (3)
- ITCS 3160 Database Design and Implementation (3)
- ITCS 3181 Logic and Computer Systems (3)
- ITCS 3181L Computer Systems Lab and Recitation (1)

ITCS 3688 Computers and Their Impact on Society (3)  
(O, W)  
ITCS 4102 Programming Languages (3)  
ENGL 2116 Introduction to Technical Communication  
(3) (W)  
ITIS 2211 Ethical Issues in Personal, Professional, and  
Public Life: Technology (3)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
PHIL 1106 Critical Thinking (3)  
STAT 2122 Introduction to Probability and Statistics  
(3)

### Concentration (12 hours)

Students select four courses in one of the computer science concentrations below.

#### Computing Systems

ITCS 3110 Compiler Construction (3)  
ITCS 3112 Design and Implementation of Object-  
Oriented Systems (3)  
ITCS 3143 Operating Systems (3)  
ITCS 3166 Introduction to Computer Networks (3)  
ITCS 4145 Parallel Computing (3)  
ITCS 4181 Microcomputer Interfacing (3)

#### Game Design and Development

ITCS 4120 Introduction to Computer Graphics (3)  
ITCS 4230 Introduction to Game Design and  
Development (3)  
ITCS 4231 Advanced Game Design and Development  
(3)  
ITCS 4235 Game Engine Construction (3)  
ITCS 4236 Artificial Intelligence for Computer Games  
(3)  
ITCS 4237 Audio Processing for Entertainment  
Computing (3)

#### Graphics and Visualization

ITCS 3134 Digital Image Processing (3)  
ITCS 4120 Introduction to Computer Graphics (3)  
ITCS 4121 Information Visualization (3)  
ITCS 4122 Visual Analytics (3)  
ITCS 4123 Visualization and Visual Communication (3)

#### Intelligent Systems

ITCS 3134 Digital Image Processing (3)  
ITCS 3152 Symbolic Programming (3)  
ITCS 3153 Introduction to Artificial Intelligence (3)  
ITCS 4151 Intelligent Robotics (3)  
ITCS 4152 Computer Vision (3)

#### Networking and Distributed Systems

ITCS 3166 Introduction to Computer Networks (3)  
ITCS 4141 Computer Organization and Architecture  
(3)  
ITCS 4145 Parallel Computing (3)

ITCS 4146 Grid Computing (3)  
ITIS 3200 Introduction to Information Security and  
Privacy (3)

### Capstone Experience (3 hours)

*Select one of the following:*

ITCS 4155 Software Development Projects (3)  
ITCS 4232 Game Design and Development Studio (3)  
ITCS 4650 Senior Project I (3)  
ITCS 4651 Senior Project II (3)  
ITCS 4990 Undergraduate Research (3)  
ITCS 4991 Undergraduate Thesis (3)

### Outside Concentration (15 hours)

A component of 15 credit hours of approved non-computer science courses forming an integrated program of outside concentration must be included. The *business outside concentration* consists of a prescribed set of courses from the College of Business and one 3000-level course from a restricted set of choices. The *mathematics outside concentration* consists of 9 credit hours of approved mathematics courses at the 3000-level or above (6 hours of additional electives must be selected in this case). In general, an outside concentration consists of 6 hours at the 3000-level or above, plus an additional 9 hours of approved non-ITCS courses, forming an integrated program of secondary strength.

### Technical Electives (6 hours)

Students select two additional ITCS or ITIS courses at the 3000-level or above.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



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## Bachelor of Arts in Computer Science

The Bachelor of Arts program requires a more compact set of a computer science core. In addition to a primary computer science concentration as in the B.S. program, it also requires 21-24 credit hours of a second concentration in a non-computer science discipline, possibly forming a minor in that discipline area. Graduates from the B.A. program are expected to have knowledge and skill in computer science plus a complementary discipline, such as business, cognitive science, biology, or any other discipline to which computing applies. The emphasis in this program is less theoretical/mathematical, and more on the applied side of computing.

### Degree Requirements

The B.A. in Computer Science requires 121 credit hours of coursework.

#### Core Courses (39 hours)

ITCS 1212 Introduction to Computer Science I (4)  
ITCS 1212L Programming Lab I (0)  
ITCS 1213 Introduction to Computer Science II (4)  
ITCS 1213L Programming Lab II (0)  
ITCS 1600 Computing Professionals (1)  
ITCS 2175 Logic and Algorithms (3)  
ITCS 2214 Data Structures (3)  
ITCS 2215 Design and Analysis of Algorithms (3)  
ITCS 3146 Operating Systems and Networking (3)  
ITCS 3155 Software Engineering (3)  
ITCS 3160 Database Design and Implementation (3)  
ITCS 3688 Computers and Their Impact on Society (3)  
(0, W)

ENGL 2116 Introduction to Technical Communication  
(3) (W)

ITIS 2211 Ethical Issues in Personal, Professional, and  
Public Life: Technology (3)

PHIL 1106 Critical Thinking (3)



### Mathematics and Statistics Courses (12 hours)

Select one group of four courses.

#### Group 1

MATH 1120 Calculus (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 2223 Elements of Statistics II (3)

#### Group 2

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 2122 Introduction to Probability and Statistics  
(3)

### Concentration (12 hours)

Students select four courses in one of the computer science concentrations below.

#### Computing Systems

ITCS 3110 Compiler Construction (3)  
ITCS 3112 Design and Implementation of Object-  
Oriented Systems (3)  
ITCS 3143 Operating Systems (3)  
ITCS 3166 Introduction to Computer Networks (3)  
ITCS 4145 Parallel Computing (3)  
ITCS 4181 Microcomputer Interfacing (3)

#### Game Design and Development

ITCS 4120 Introduction to Computer Graphics (3)  
ITCS 4230 Introduction to Game Design and  
Development (3)  
ITCS 4231 Advanced Game Design and Development  
(3)  
ITCS 4235 Game Engine Construction (3)  
ITCS 4236 Artificial Intelligence for Computer Games  
(3)  
ITCS 4237 Audio Processing for Entertainment  
Computing (3)

#### Graphics and Visualization

ITCS 3134 Digital Image Processing (3)  
ITCS 4120 Introduction to Computer Graphics (3)  
ITCS 4121 Information Visualization (3)  
ITCS 4122 Visual Analytics (3)  
ITCS 4123 Visualization and Visual Communication (3)

#### Intelligent Systems

ITCS 3134 Digital Image Processing (3)  
ITCS 3152 Symbolic Programming (3)  
ITCS 3153 Introduction to Artificial Intelligence (3)  
ITCS 4151 Intelligent Robotics (3)  
ITCS 4152 Computer Vision (3)

#### Networking and Distributed Systems

ITCS 3166 Introduction to Computer Networks (3)

- ITCS 4141 Computer Organization and Architecture (3)
- ITCS 4145 Parallel Computing (3)
- ITCS 4146 Grid Computing (3)
- ITIS 3200 Introduction to Information Security and Privacy (3)

**Capstone Experience (3 hours)**

Select one of the following:

- ITCS 4155 Software Development Projects (3)
- ITCS 4232 Game Design and Development Studio (3)
- ITCS 4650 Senior Project I (3)
- ITCS 4651 Senior Project II (3)
- ITCS 4990 Undergraduate Research (3)
- ITCS 4991 Undergraduate Thesis (3)

**Secondary Concentration (21-24 hours)**

A component of approved non-computer science courses forming an integrated program of secondary concentration must be included in the B.A. in Computer Science program. In general, a secondary concentration consists of 9 hours at the 3000-level or above, plus an additional 12 hours of approved non-computer science courses, forming an integrated program in a complementary (or applied) area to computer science, possibly forming a minor in that discipline area. A three-hour bridge course is included in the 21-24 hours. This course bridges between computer science and the secondary concentration discipline, which can be a computer science course or a course in the other discipline. The secondary concentration requirement is quite flexible and can be tailored to a student's interest upon the approval of his/her academic advisor. To illustrate this, here are two possibilities:

**Business**

- ACCT 2121 Principles of Accounting I (3)
- ACCT 2122 Principles of Accounting II (3)
- ECON 2101 Principles of Economics – Macro (3)
- ECON 2102 Principles of Economics – Micro (3)
- INFO 3231 Business Applications Development (3)
- INFO 3234 Business Information Systems Analysis and Design (3)
- INFO 3236 Business Analytics (3)  
or INFO 3240 eBusiness Systems (3)
- ITCS 2231 Introduction to Business Programming (3)\*

**Cognitive Science**

- ITCS 3216 Introduction to Cognitive Science (3)\*
- ITIS 3130 Human-Computer Interaction (3)
- PSYC 3115 Sensation and Perception (3)
- PSYC 3116 Human Cognitive Processes (3)

Plus three of the following:

- ENGL 4161 Modern English Grammar (3)
- ENGL 4167 The Mind and Language (3)
- ENGL 4263 Linguistics and Language Learning (3)

- ITIS 3131 Human and Computer Information Processing (3)
- PSYC 3122 Cognitive and Language Development (3)
- PSYC 3313 Neuropsychology (3)
- PSYC 4316 Cognitive Neuroscience (3)

*\*Bridge course*

**Technical Electives (6 hours)**

Students select two additional ITCS or ITIS courses at the 3000-level or above.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).




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**Minor In Computer Science**

Requirements for the Minor in Computer Science include completion of 20 hours of computer science:

- ITCS 1212 Introduction to Computer Science (4)
- ITCS 1212L Programming Lab I (0)
- ITCS 1213 Introduction to Computer Science II (4)
- ITCS 1213L Programming Lab II (0)
- ITCS 2175 Logic and Algorithms (3)
- ITCS 2214 Data Structures (3)
- ITCS 2215 Design and Analysis of Algorithms (3)
- ITCS 3688 Computers and Their Impact on Society (3)  
(0, W)

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**Undergraduate Certificate in Game Design and Development**

The Undergraduate Certificate in Game Design and Development (GDD) provides undergraduate students with the opportunity to reach a demonstrated level of competence in game design and development. Course-work towards the certificate in GDD can be used for credit towards the Bachelor's degree in Computer Science. However, its primary purpose is to

provide a well-defined target for students who want to advance their knowledge of modern game design and development techniques and work with a variety of professionals, from artists to writers, to being the vision for an interactive game or media product to life. The certificate may be pursued concurrently with any of the undergraduate degree programs at UNC Charlotte.



### Admission Requirements

To be admitted into the Undergraduate Certificate in Game Design and Development, students must meet the general University requirements for admission into Undergraduate Certificate Programs. These University-level requirements include:

- 1) An undergraduate degree or admission to an undergraduate degree program at UNC Charlotte.
- 2) An application submitted to the Registrar if applicant already holds an undergraduate degree, or to the department offering the program if applicant does not hold an undergraduate degree.
- 3) Official transcripts for previous degree(s) and course work
- 4) A Declaration of Program form (Change of Major/Minor form) listing the certificate program.

In addition, the program expects a current working knowledge of two higher-level languages, including at least one procedural language; and a familiarity with computer applications. The following minimal background in mathematics is also required: two semesters of calculus and one semester of discrete structures. Individuals who have worked at a high professional level in the computer industry may be able to substitute work experience for specific subject area admission requirements.

Students who anticipate applying certificate courses toward an undergraduate degree program should seek advice from that program prior to enrolling. Admission to an undergraduate degree program does not ensure admission into a discipline-related certificate program.

### Course Requirements

The certificate will be awarded upon completion of five to six undergraduate level courses (15-18 credits) in

the area of game design and development. Up to a maximum of six transfer credits may be applied to the certificate. Course substitutions may be made at the discretion of the GDD Certificate Coordinator. The certificate program requires all courses taken for the certificate to be passed at the C level or above, and a GPA in all certificate courses of 2.5 or above.

### Required Compulsory Courses (12 credits)

- ITCS 4120 Introduction to Computer Graphics (3)
- ITCS 4230 Introduction to Game Design and Development (3)
- ITCS 4231 Advanced Game Design and Development (3)
- ITCS 4232 Game Design and Development Studio (3)

### Concentration Courses (3-6 credits)

Students should take one two-course sequence from the following:

#### *Artificial Intelligence*

- ITCS 3153 Introduction to Artificial Intelligence (3)
- ITCS 4236 A.I. for Computer Games (3)

#### *Computation*

- ITCS 4237 Audio Processing for Entertainment Computing (3)
- A computation-related course approved by the GDD Certificate Coordinator (3)

#### *Graphics*

- ITCS 4120 Introduction to Computer Graphics (3) (*this is already a required compulsory course*)
- ITCS 4235 Game Engine Construction (3)

#### *Networking*

- ITCS 3166 Introduction to Computer Networks (3)
- A game-networking related course approved by the GDD Certificate Coordinator (3)

#### *Other*

A sequence of two related courses (generally from ITCS/ITIS at the 3000-level or above) approved by the GDD Certificate Coordinator.

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## Early Entry: Master of Science in Computer Science

Exceptional undergraduate students at UNC Charlotte may be accepted into the Early Entry Program for the Master of Science in Computer Science and begin work toward a graduate degree before completion of the baccalaureate degree. The criteria for admission are the following:

- 1) A student may be accepted into the Early Entry Program at any time after completion of 75 credit hours of undergraduate work applicable to the

appropriate degree although it is expected that close to 90 hours will have been earned by the time the first graduate course is taken.

- 2) The application process and all required documentation (e.g., test scores, transcripts, letters of recommendation) are the same for early entry students as for other applicants to the program except that the GRE scores are waived. Admission must be recommended by the Department of Computer Science and approved by the Graduate School. The admission status will be "provisional" pending the award of the undergraduate degree.
- 3) To be accepted into this program an undergraduate student must have at least a 3.2 overall GPA and a minimum 3.3 GPA in the department of Computer Science.
- 4) If an Early Entry student has not met the normal graduate admission requirements of a 2.75 overall undergraduate GPA and a 3.0 junior senior GPA at the end of his/her baccalaureate degree, she/he will be dismissed from the graduate program.
- 5) Students accepted into an Early Entry Program will be subject to the same policies that pertain to other matriculated graduate students. Generally, it will be assumed that Early Entry students will finish their baccalaureate degrees before they complete 15 hours of graduate work.
- 6) This Early Entry Program is also accelerated in which up to 12 hours earned at the graduate level may be substituted for required undergraduate hours. In other words, up to 12 hours of graduate work may be "double counted" toward both the baccalaureate and graduate degrees.

ITCS 3183 Hardware Systems Design	ITCS 6182 Advanced Computer Architecture
ITCS 3166 Intro to Computer Networks	ITCS 6166 Computer Communications and Networks
ITCS 3XXX/4XXX (up to 9 credit hours)	Any graduate courses from CCI that are not otherwise used in a substitution above (up to 9 hours)

### Approved Course Substitutions for Early Entry into the M.S. in Computer Science program

Required Undergraduate Computer Science Courses	Graduate Course Substitutions
ITCS 3160 Database Design and Implementation	ITIS 5160 Applied Database, (applies for graduate credit only if entering the MSIT program), or ITCS 6160 Database Systems, (applies for graduate credit only if entering the MS Computer Science program)
ITCS 3143 Operating Systems	ITCS 6144 Operating Systems Design
ITCS 3155 Software Engineering	ITCS 6112 Software Systems Design and Implementation
ITCS 4102 Programming Languages	ITCS 5102 Survey of Programming Languages
ITCS 3181 Logic and Computer Systems + ITCS 3181L Computer Systems Lab and Recitation <b>OR</b> ITCS 3182 Computer Organization and Architecture	ITCS 5141 Computer Organization and Architecture

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# Department of Software and Information Systems

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<http://sis.uncc.edu>

The Department of Software and Information Systems provides a range of courses and concentrations related to the design, management, and security of software systems with an emphasis on information technology. The department offers courses in information technology design and management; software systems design, architecture, integration, and implementation; human centered design and interaction, cyber security, health informatics, and intelligent and complex systems.

## Degree Programs

The Department of Software and Information Systems offers both undergraduate and graduate programs. The undergraduate program leads either to a Bachelor of Arts (B.A.) in Computer Science or a Minor in Software and Information Systems. The Software and Information Systems concentrations described below are technically part of the Computer Science major but for administrative and advising purposes, students completing these concentrations are members of the Department of Software and Information Systems.

The graduate program leads to a Master of Science (M.S.) in Information Technology (see the *UNC Charlotte Graduate Catalog* for information on the M.S. degree). Graduate certificate programs in Information Security and Privacy, Health Informatics, and Information Technology Management are also available. To assist with their studies, students have access to advanced computer labs and software where they can practice and experiment in controlled environments. In addition, the department maintains a high degree of interaction with working industry professionals who provide real-world expertise and experience.

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## Bachelor of Arts in Computer Science

Within the Department of Software and Information Systems, the requirements of the Bachelor of Arts (B.A.) in Computer Science are fulfilled by completing specific concentrations of courses designed for

students interested in pursuing a career in Cyber Security, Financial Services Informatics, Information Technology, Software and Information Systems, Software Engineering, or Web Development. These concentrations are designed to best prepare students to match the diverse requirements of employers. It also prepares students to pursue graduate studies in related areas. The focus of these concentrations includes:

- Web and Mobile Applications Development
- Software Engineering (design, integration, testing, and assurance)
- Information Security and Privacy
- Human – Computer Interaction
- IT Infrastructure Design
- Emerging Technology
- Financial Services Informatics

Under this program, the requirements for the B.A. degree may be fulfilled by completing the traditional program (i.e., the Concentration in Software and Information Systems) or any of the other five concentrations. The traditional program emphasizes advanced programming and mathematics skills. It is intended for students who have a general interest in information technology and who want to maintain maximum flexibility in course selection and job opportunity. The Concentration in Cyber Security emphasizes the detection and mitigation of security threats in information systems. The Concentration in Information Technology emphasizes usability, security, and reliability of IT infrastructures, as well as writing and communications skills. The Concentration in Software Engineering integrates mathematics and computer science to achieve classical engineering approaches to software system problem solving. The Concentration in Web Development emphasizes software development using Internet and World-Wide Web technologies that are increasingly the default model for business-customer interaction. These five concentrations prepare students for a wide variety of jobs or graduate studies. The Concentration in Financial Services Informatics is designed to meet the needs of the financial services sector with a unique combination of finance and information technology courses, industry internships, and sponsored capstone projects.

A common feature of this degree program is that students in all concentrations must complete a course in critical thinking (PHIL 1106) and a course in ethics that addresses issues of information technology. A special section of LBST 2211 (Ethical Issues in Personal, Professional, and Public Life) will be designated as Ethical Issues: Technology (EI:T). Software and Information Systems students who complete this section of LBST 2211 (identified as ITIS

2211 for registration purposes) will fulfill both departmental and General Education Requirements for a course in ethical issues and cultural critique.

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## Bachelor of Arts in Computer Science with Concentration in Cyber Security

The Bachelor of Arts (B.A.) in Computer Science with a Concentration in Cyber Security requires 121 credit hours.

### Degree Requirements

#### General Education Courses

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

#### *Critical Thinking and Technology Ethics Courses*

PHIL 1106 Critical Thinking (3)  
ITIS 2211 Ethical Issues in Personal, Professional, and Public Life: Technology (3)

#### *English and Communications Courses*

UWRT 1101 Writing and Inquiry in Academic Contexts I (3) and UWRT 1102 Writing and Inquiry in Academic Contexts II (3)  
or UWRT 1103 Accelerated College Writing and Rhetoric (3)  
ENGL 2116 Introduction to Technical Communication (3) (W)  
COMM 2105 Small Group Communication (3)

#### *Mathematics and Statistics Courses*

Select one of the following sequences:

##### *Sequence 1*

MATH 1120 Calculus (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 2223 Elements of Statistics II (3)

##### *Sequence 2*

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 2122 Introduction to Probability and Statistics (3)

#### Major Courses (51 credit hours)

ITCS 1212 Introduction to Computer Science I (4)  
ITCS 1212L Programming Lab I (0)  
ITCS 1213 Introduction to Computer Science II (4)  
ITCS 1213L Programming Lab II (0)  
ITCS 2175 Logic and Algorithms (3)  
ITCS 2214 Data Structures (3)

ITCS 2215 Design and Analysis of Algorithms (3)  
ITCS 3160 Database Design and Implementation (3)  
ITCS 3688 Computers and Their Impact on Society (3) (O, W)  
ITIS 1600 Computing Professionals (1)  
ITIS 2110 IT Infrastructure I: Design and Practice (3)  
ITIS 2110L IT Infrastructure I: Design and Practice Lab (0)  
ITIS 2300 Web-Based Application Development (3)  
ITIS 3110 IT Infrastructure I: Design and Practice (3)  
ITIS 3110L IT Infrastructure I: Design and Practice Lab (0)  
ITIS 3130 Human-Computer Interaction (3)  
ITIS 3200 Introduction to Information Security and Privacy (3)  
ITIS 3300 Software Requirements and Project Management (3)  
ITIS 4166 Network-Based Application Development (3)  
ITIS 4221 Secure Programming and Penetration Testing (3)  
ITIS 4250 Computer Forensics (3)

#### Restricted Elective Courses (6 credit hours)

Select approved ITIS or ITCS courses numbered 3000 or above.

#### Unrestricted Elective Courses (15 credit hours)

Students must complete at least 15 credit hours in a concentration of courses that form a coherent body of study related to developing applications of information systems. At least six of the 15 hours must be upper-division courses. These courses must be completed in a major outside of the College of Computing and Informatics and require approval of the student's academic advisor.

### Degree Total = 121 Credit Hours

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Computer Science with Concentration in Financial Services Informatics

The Bachelor of Arts (B.A.) in Computer Science with a Concentration in Financial Services Informatics requires 120 credit hours.

### Degree Requirements

#### General Education Courses

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general

education and major requirements.

### ***Critical Thinking and Technology Ethics Courses***

PHIL 1106 Critical Thinking (3)  
LBST 2211 Ethical Issues in Personal, Professional,  
and Public Life (3)

### ***English and Communications Courses***

UWRT 1101 Writing and Inquiry in Academic Contexts  
I (3) and UWRT 1102 Writing and Inquiry in  
Academic Contexts II (3)  
or UWRT 1103 Accelerated College Writing and  
Rhetoric (3)

ENGL 2116 Introduction to Technical Communication  
(3) (W)  
COMM 2105 Small Group Communication (3)

### ***Mathematics and Statistics Courses***

MATH 1120 Calculus (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 2223 Elements of Statistics II (3)

### **Major Courses (38 credit hours)**

ITCS 1212 Introduction to Computer Science I (4)  
ITCS 1212L Programming Lab I (0)  
ITCS 1213 Introduction to Computer Science II (4)  
ITCS 1213L Programming Lab II (0)  
ITCS 2301 Financial Services Computing Environment  
(3)  
or ITIS 2301 Financial Services Computing  
Environment (3)  
ITCS 3155 Software Engineering (3)  
ITCS 3160 Database Design and Implementation (3)  
ITCS 3688 Computers and Their Impact on Society (3)  
(O, W)  
ITIS 1210 Introduction to Web-Based Information  
Systems (3)  
ITIS 2300 Web-Based Application Development (3)  
ITIS 3130 Human-Computer Interaction (3)  
ITIS 3200 Introduction to Information Security and  
Privacy (3)  
ITIS 3300 Software Requirements and Project  
Management (3)  
ITIS 4220 Vulnerability Assessment and Systems  
Assurance (3)

### **Concentration Courses (27 credit hours)**

ACCT 2121 Principles of Accounting I (3)  
ACCT 2122 Principles of Accounting II (3)  
ECON 2101 Principles of Economics - Macro (3)  
ECON 2102 Principles of Economics - Micro (3)  
FINN 3120 Financial Management (3)  
FINN 3221 Financial Institutions and Markets (3)  
FINN 3226 Financial Theory and Practice (3)  
ITIS 1301 Introduction to the Financial Services  
Industry (3)  
or ITCS 1301 Introduction to the Financial Services

Industry (3)

ITIS 3301 Introduction to the Regulatory Environment  
for Financial Services Firms (3)  
or ITCS 3301 Introduction to the Regulatory  
Environment for Financial Services Firms (3)

### **Capstone Courses (6 credit hours)**

*Select one of the following sequences:*

#### *Sequence 1*

ITIS 4640 Financial Services Informatics Industry  
Foundations Capstone I (3)  
ITIS 4641 Financial Services Informatics Industry  
Foundations Capstone II (3)

#### *Sequence 2*

ITCS 4640 Financial Services Informatics Industry  
Foundations Capstone I (3)  
ITCS 4641 Financial Services Informatics Industry  
Foundations Capstone II (3)

### **Degree Total = 120 Credit Hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward  
completing the major, please see the Academic Plan of  
Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Arts in Computer Science with Concentration in Information Technology**

The Bachelor of Arts (B.A.) in Computer Science with a  
Concentration in Information Technology requires 120  
credit hours.

### **Degree Requirements**

#### **General Education Courses**

For details on required courses, refer to the General  
Education program. Students in this major should plan  
on taking the following courses that meet general  
education and major requirements.

#### ***Critical Thinking and Technology Ethics Courses***

PHIL 1106 Critical Thinking (3)  
ITIS 2211 Ethical Issues in Personal, Professional, and  
Public Life: Technology (3)

#### ***English and Communications Courses***

UWRT 1101 Writing and Inquiry in Academic Contexts  
I (3) and UWRT 1102 Writing and Inquiry in  
Academic Contexts II (3)  
or UWRT 1103 Accelerated College Writing and  
Rhetoric (3)

ENGL 2116 Introduction to Technical Communication  
(3) (W)

- COMM 2100 Introduction to Communication Theory (3)  
 COMM 2105 Small Group Communication (3)

**Mathematics and Statistics Courses**

- MATH 1100 College Algebra and Probability (3)  
 or MATH 1103 Precalculus Mathematics for  
 Science and Engineering (3)  
 STAT 1220 Elements of Statistics I (BUSN) (3)

**Major Courses**

- ITCS 1212 Introduction to Computer Science I (4)  
 ITCS 1212L Programming Lab I (0)  
 ITCS 1213 Introduction to Computer Science II (4)  
 ITCS 1213L Programming Lab II (0)  
 ITCS 3160 Database Design and Implementation (3)  
 ITCS 3688 Computers and Their Impact on Society (3)  
 (O, W)  
 ITIS 1600 Computing Professionals (1)  
 ITIS 2110 IT Infrastructure I: Design and Practice (3)  
 ITIS 2110L IT Infrastructure I: Design and Practice  
 Lab (0)  
 ITIS 2300 Web-Based Application Development (3)  
 ITIS 3110 IT Infrastructure II: Design and Practice (3)  
 ITIS 3110L IT Infrastructure II: Design and Practice  
 Lab (0)  
 ITIS 3130 Human-Computer Interaction (3)  
 ITIS 3200 Introduction to Information Security and  
 Privacy (3)  
 ITIS 3300 Software Requirements and Project  
 Management (3)  
 ITIS 3320 Introduction to Software Testing and  
 Assurance (3)

**Concentration Courses**

- ENGL 4181 Writing and Designing User Documents  
 (3)  
 or ENGL 4183 Editing with Digital Technologies (3)  
 ENGL 4182 Information Design and Digital Publishing  
 (3)  
 or COMM 3141 Organizational Communication (3)

**Restricted Elective Courses (6 credit hours)**

Select approved ITIS or ITCS courses numbered 3000 or above.

**Unrestricted Elective Courses (21 credit hours)**

In addition, each student, in consultation with his or her academic advisor, must complete at least 21 credit hours by either:

- 1) Completing the requirements for a minor chosen by the student even if doing so requires more than 21 hours (if the minor can be completed in less than 21 hours, the remaining hours become unrestricted electives) **OR**
- 2) Completing a series of courses in a major that does not offer a minor. These courses must form a

coherent body of study related to developing applications of information systems. The courses selected must include a minimum of 9 hours of upper-division courses.

In completing this requirement, students must comply with all prerequisites and other applicable academic regulations for courses offered by any department, even if doing so requires exceeding the 120-credit hour minimum necessary for graduation.

**Degree Total = 120 Credit Hours**

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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**Bachelor of Arts in Computer Science with Concentration in Software and Information Systems**

The Bachelor of Arts (B.A.) in Computer Science with a Concentration in Software and Information Systems requires 120 credit hours.

**Degree Requirements**

**General Education Courses**

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

**Critical Thinking and Technology Ethics Courses**

- PHIL 1106 Critical Thinking (3)  
 ITIS 2211 Ethical Issues in Personal, Professional, and Public Life: Technology (3)

**English and Communications Courses**

- UWRT 1101 Writing and Inquiry in Academic Contexts I (3) and UWRT 1102 Writing and Inquiry in Academic Contexts II (3)  
 or UWRT 1103 Accelerated College Writing and Rhetoric (3)

- ENGL 2116 Introduction to Technical Communication (3) (W)  
 COMM 2105 Small Group Communication (3)

**Mathematics and Statistics Courses**

Select one of the following sequences:

*Sequence 1*

- MATH 1120 Calculus (3)  
 MATH 2164 Matrices and Linear Algebra (3)

STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 2223 Elements of Statistics II (3)

*Sequence 2*

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 2122 Introduction to Probability and Statistics (3)

**Major Courses**

ITIS 1600 Computing Professionals (1)  
ITIS 2110 IT Infrastructure I: Design and Practice (3)  
ITIS 2110L IT Infrastructure I: Design and Practice Lab (0)  
ITIS 2300 Web-Based Application Development (3)  
ITIS 3200 Introduction to Information Security and Privacy (3)  
ITIS 3300 Software Requirements and Project Management (3)  
ITIS 3310 Software Architecture and Design (3)  
ITIS 3320 Introduction to Software Testing and Assurance (3)  
ITIS 4166 Network-Based Application Development (3)  
ITCS 1212 Introduction to Computer Science I (4)  
ITCS 1212L Programming Lab I (0)  
ITCS 1213 Introduction to Computer Science II (4)  
ITCS 1213L Programming Lab II (0)  
ITCS 2175 Logic and Algorithms (3)  
ITCS 2214 Data Structures (3)  
ITCS 2215 Design and Analysis of Algorithms (3)  
ITCS 3160 Database Design and Implementation (3)  
ITCS 3688 Computers and Their Impact on Society (3) (O, W)

**Restricted Elective Courses (9 credit hours)**

Select approved ITIS or ITCS courses numbered 3000 or above.

**Concentration Courses (15 credit hours)**

Students must complete at least 15 credit hours in a concentration of courses that form a coherent body of study related to developing applications of information systems. At least six of the 15 hours must be upper-division courses. These courses must be completed in a major outside of the College of Computing and Informatics and require approval of the student's academic advisor.

**Degree Total = 120 Credit Hours**

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Computer Science with Concentration in Software Engineering

The Bachelor of Arts (B.A.) in Computer Science with a Concentration in Software Engineering requires 120 credit hours.

**Degree Requirements**

**General Education Courses**

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

***Critical Thinking and Technology Ethics Courses***

PHIL 1106 Critical Thinking (3)  
ITIS 2211 Ethical Issues in Personal, Professional, and Public Life: Technology (3)

***English and Communications Courses***

UWRT 1101 Writing and Inquiry in Academic Contexts I (3) and UWRT 1102 Writing and Inquiry in Academic Contexts II (3)  
or UWRT 1103 Accelerated College Writing and Rhetoric (3)

ENGL 2116 Introduction to Technical Communication (3) (W)  
COMM 2105 Small Group Communication (3)

***Mathematics and Statistics Courses***

Select one of the following sequences:

*Sequence 1*

MATH 1120 Calculus (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 2223 Elements of Statistics II (3)

*Sequence 2*

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
STAT 2122 Introduction to Probability and Statistics (3)

**Major Courses (51 credit hours)**

ITIS 1600 Computing Professionals (1)  
ITIS 2110 IT Infrastructure I: Design and Practice (3)  
ITIS 2110L IT Infrastructure I: Design and Practice Lab (0)  
ITIS 2300 Web-Based Application Development (3)  
ITIS 3130 Human-Computer Interaction (3)  
ITIS 3150 Rapid Prototyping and Interface Building (3)

ITIS 3200 Introduction to Information Security and Privacy (3)  
 ITIS 3300 Software Requirements and Project Management (3)  
 ITIS 3310 Software Architecture and Design (3)  
 ITIS 3320 Introduction to Software Testing and Assurance (3)  
 ITCS 1212 Introduction to Computer Science I (4)  
 ITCS 1212L Programming Lab I (0)  
 ITCS 1213 Introduction to Computer Science II (4)  
 ITCS 1213L Programming Lab II (0)  
 ITCS 2175 Logic and Algorithms (3)  
 ITCS 2214 Data Structures (3)  
 ITCS 2215 Design and Analysis of Algorithms (3)  
 ITCS 3160 Database Design and Implementation (3)  
 ITCS 3688 Computers and Their Impact on Society (3) (O, W)  
 ITCS 4155 Software Development Projects (3)

### Concentration Courses (15 credit hours)

Students must complete at least 15 credit hours in a concentration of courses that form a coherent body of study related to developing applications of information systems. At least six of the 15 hours must be upper-division courses. These courses must be completed in a major outside the College of Computing and Informatics and require approval of the student's academic advisor.

### Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Bachelor of Arts in Computer Science with Concentration in Web Development

The Bachelor of Arts (B.A.) in Computer Science with a Concentration in Web Development requires 120 credit hours.

### Degree Requirements

#### General Education Courses

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

#### Critical Thinking and Technology Ethics Courses

PHIL 1106 Critical Thinking (3)  
 ITIS 2211 Ethical Issues in Personal, Professional, and Public Life: Technology (3)

### English and Communications Courses

UWRT 1101 Writing and Inquiry in Academic Contexts I (3) and UWRT 1102 Writing and Inquiry in Academic Contexts II (3)  
 or UWRT 1103 Accelerated College Writing and Rhetoric (3)

ENGL 2116 Introduction to Technical Communication (3) (W)  
 COMM 2105 Small Group Communication (3)

### Mathematics and Statistics Courses

Select one of the following sequences:

#### Sequence 1

MATH 1120 Calculus (3)  
 MATH 2164 Matrices and Linear Algebra (3)  
 STAT 1220 Elements of Statistics I (BUSN) (3)  
 STAT 2223 Elements of Statistics II (3)

#### Sequence 2

MATH 1241 Calculus I (3)  
 MATH 1242 Calculus II (3)  
 MATH 2164 Matrices and Linear Algebra (3)  
 STAT 2122 Introduction to Probability and Statistics (3)

### Major Courses

ITIS 1600 Computing Professionals (1)  
 ITIS 2110 IT Infrastructure I: Design and Practice (3)  
 ITIS 2110L IT Infrastructure I: Design and Practice Lab (0)  
 ITIS 2300 Web-Based Application Development (3)  
 ITIS 3105 Server-Side Applications and Data Management (3)  
 ITIS 3110 IT Infrastructure II: Design and Practice (3)  
 ITIS 3110L IT Infrastructure II: Design and Practice Lab (0)  
 ITIS 3130 Human-Computer Interaction (3)  
 ITIS 3150 Rapid Prototyping and Interface Building (3)  
 ITIS 3200 Introduction to Information Security and Privacy (3)  
 ITIS 3300 Software Requirements and Project Management (3)  
 ITIS 4166 Network-Based Application Development (3)  
 ITIS 4170 Advanced Client Applications (3)  
 ITIS 4221 Secure Programming and Penetration Testing (3)  
 ITCS 1212 Introduction to Computer Science I (4)  
 ITCS 1212L Programming Lab I (0)  
 ITCS 1213 Introduction to Computer Science II (4)  
 ITCS 1213L Programming Lab II (0)  
 ITCS 2214 Data Structures (3)  
 ITCS 3160 Database Design and Implementation (3)  
 ITCS 3688 Computers and Their Impact on Society (3) (O, W)

### Restricted Elective Courses (6 credit hours)

Select from approved ITIS or ITCS courses numbered 3000 or above.

### Concentration Courses (15 credit hours)

Students must complete at least 15 credit hours in a concentration of courses that form a coherent body of study related to developing applications of information systems. At least six of the 15 hours must be upper-division courses. These courses must be completed in a major outside the College of Computing and Informatics and require approval of the student's academic advisor.

### Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Software and Information Systems

This program is designed to provide students with the Information Technology knowledge necessary for today's

information-based society. Students not only gain hands-on knowledge of how to use the Internet to develop effective and easy-to-use



applications but also understand critical issues in designing information systems such as requirements development, integration, security and privacy, legal and policy considerations, and project management.

### Program Requirements

The minor requires a minimum of 18 credit hours. Students may include no more than three (3) ITCS courses in the SIS minor. Students must take at least two upper-division courses. Students must receive a grade of C or above in a course in order for that course to count toward the SIS minor.

### Required Courses (9 credits)

ITCS 1212 Introduction to Computer Science I (4)  
ITCS 1212L Programming Lab I (0)  
ITIS 1210 Introduction to Web-Based Information Systems (3)  
ITIS 2300 Introduction to Web-Based Application Development (3)

### Elective Courses (9 credits)

Select 3 of the following courses:

ITCS 1213/1213L Introduction to Computer Science II (4)  
ITCS 3160 Database Design and Implementation (3)\*  
ITCS 3688 Computers and their Impact on Society (3) (O, W)  
ITIS 2110/2110L IT Infrastructure I: Design and Practice (3)  
ITIS 3110/3110L IT Infrastructure II: Design and Practice (3)\*  
ITIS 3130 Human-Computer Interaction (3)  
ITIS 3150 Rapid Prototyping and Interface Design (3)  
ITIS 3200 Introduction to Information Security and Privacy (3)\*  
ITIS 3300 Software Requirements and Project Management (3)\*

*\*These courses have their own prerequisite requirements (which are also in this list). Students must complete all prerequisites.*

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## Early Entry: Master of Science in Information Technology

Exceptional undergraduate students at UNC Charlotte may be accepted into the M.S. in Information Technology program and begin work toward a graduate degree before the completion of their undergraduate degrees. Up to four courses from a list of approved graduate level courses may be double-counted toward both the master's and the undergraduate degrees of the students. Criteria for admission include:

1. An undergraduate student may be accepted into the Early Entry Program at any time after the completion of 75 credit hours of undergraduate work applicable to the appropriate degree, although it is expected that close to 90 credit hours will have been earned by the time the first graduate level course is taken.
2. The student must have achieved a minimum overall GPA of 3.2.
3. The application process and all required documentation (e.g., test scores, transcripts, letters of recommendation) for Early Entry Program applicants are the same as those for regular applicants to the master's program, with the exception that GRE test scores are waived for early entry applicants. Admission must be recommended by the Department of Software and Information Systems and approved by the Graduate School. The admission status will be "provisional" pending the award of the student's undergraduate degree.
4. Students accepted into the Early Entry Program will be subject to the same policies and regulations that pertain to other matriculated graduate

students. Generally, Early Entry students are expected to finish their undergraduate degrees before they complete 15 credit hours of graduate level coursework.

# *College of* Education



# College of Education

<http://education.uncc.edu>

The mission of the College of Education at UNC Charlotte is to prepare highly effective and ethical professionals who have a positive impact on children, youth, families, community, and schools and who are successful in urban and other diverse settings. This mission is accomplished through teaching, research, and community engagement that lead to improved practice and by working in partnership with schools, communities, and university colleagues.

The College of Education consists of these departments:

- Department of Counseling
- Department of Educational Leadership
- Department of Middle, Secondary, and K-12 Education
- Department of Reading and Elementary Education
- Department of Special Education and Child Development



## Degree Programs

### Major Programs

- Child and Family Development: (Birth-Kindergarten licensure)
- Elementary Education (grades K-6 licensure)
- Middle Grades Education (grades 6-9 licensure)
- Special Education: General Curriculum (grades K-12 licensure)
- Special Education: Adapted Curriculum (grades K-12 licensure)
- Special Education and Elementary Education (grades K-6 licensure) (*Dual Major*)

### Minor Programs

- Child and Family Development (non-licensure)
- Foreign Language Education (grades K-12 licensure)\*
- Reading Education (grades K-12 licensure)\*\*
- Secondary Education (grades 9-12 licensure)\*\*\*
- Teaching English as a Second Language (grades K-12 licensure)\*\*
- Urban Youth and Communities (non-licensure)

\*The Minor in Foreign Language Education, offered in collaboration with the Department of Languages and Culture Studies in the College of Liberal Arts & Sciences, leads to teacher licensure in one of the following areas (grades K-12):

- French
- German
- Spanish

\*\*The Reading Education and Teaching English as a Second Language license can only be added to another licensure area.

\*\*\*The Minor in Secondary Education, offered in collaboration with appropriate departments in the College of Liberal Arts & Sciences, leads to licensure to teach in the following areas of Secondary Education (grades 9-12):

- Biology
- Comprehensive Science
- Comprehensive Social Studies
- Chemistry
- Earth Science
- English
- Mathematics
- Physics

In collaboration with the College of Arts + Architecture, the College of Education offers professional education coursework that leads to licensure to teach in the following areas (grades K-12):

- Art
- Dance
- Music
- Theatre

## Accreditation

All professional education programs in the College of Education are approved by the North Carolina State Board of Education, and they have continuing accreditation from the National Council for Accreditation of Teacher Education (NCATE).

## Program Responsibilities

The College of Education has these undergraduate program responsibilities:

- To develop, deliver, and evaluate high quality undergraduate programs that prepare teachers and other professional personnel for schools and related agencies.
- To operate programs that meet the standards of external governing, licensing, and accrediting agencies.
- To address the culturally diverse educational needs of its particular region.
- To initiate and support activities in global perspectives of its faculty and students.
- To respond effectively to the problems and needs of children, their families, and professionals in schools and related agencies.

## Program Values

The College of Education holds these program values:

- *We are a community of scholars* who are committed individually and collectively to creating learning opportunities and environments where we enhance the capacity of our students to have a positive impact on children, youth, communities, families and schools. We are committed to meeting the developmental and educational needs of our students and to maximize the growth, development, and learning of each individual.
- *In our programs of study*, we are committed to high quality programs that are standards-based, to the ongoing assessment of candidates and programs for the purpose of continuous improvement, to collaboration and outreach, and to the highest standards of professional practice and scholarship. We are committed to international understanding and involvement.
- *In fulfilling our professional roles*, we are committed to the generation, dissemination, and application of knowledge. We, therefore, expect that faculty will be teacher-scholars and that they will maintain a balanced commitment to teaching, research, and service. We have a strong commitment to academic excellence and exceptional quality in all that we do.
- *In our dealings with each other, our students, and our professional colleagues in schools and communities*, we are committed to valuing diversity and to speaking out against oppression. We are committed to thoughtfulness, reflection, flexibility, and the exploration of new ideas. We are committed to openness, honesty, forthrightness, and the highest standards of integrity and ethical behavior. We strive to be collegial, collaborative, human, and respectful of others, even when we are not in total agreement with their views or with their work, and we are committed to being sensitive to and supportive of others, including students, staff, faculty, and our professional colleagues in the community.

## Conceptual Framework: *Professional Educators Transforming Lives*

The Conceptual Framework of Professional Education Programs at UNC Charlotte provides the vision, rationale, and knowledge base for identifying the proficiencies that our graduates will demonstrate. In establishing the goal that graduates of our program will be prepared to transform the lives of children, youth, and families, our professional education programs are structured to provide both initial and advanced candidates with multiple opportunities during coursework, early field experience, and clinical practice to develop the **knowledge, effectiveness, and commitment** necessary to achieve this goal.

For candidates to play a transformational role in the lives of all learners, they must acquire the **knowledge** necessary to provide effective instruction and other educational services, to respond to diverse individual learner needs, to lead and collaborate with others, and to engagement in continuous professional growth. Candidates demonstrate their knowledge in several broad areas, such as:

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Knowledge relevant to life in the 21<sup>st</sup> century</li><li>• Specialty area knowledge</li><li>• Pedagogical knowledge</li><li>• Knowledge of learners and their contexts</li></ul> | <ul style="list-style-type: none"><li>• Self-awareness</li><li>• Knowledge of policies, laws, standards, and issues</li></ul> |
|---|---|

The ability to contribute to the transformation on the lives of all learners requires that candidates use the knowledge they develop to demonstrate **effectiveness** in their work with learners. All professional educators develop a skill set

that can be used to have a positive impact on learners. Candidates demonstrate effective skills and practices in several broad areas, such as:

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Use of 21<sup>st</sup> century skills</li><li>• Planning, implementation, and evaluation</li><li>• Research-based practice</li><li>• Research skills</li></ul> | <ul style="list-style-type: none"><li>• Culturally competent practice</li><li>• Responsive to diverse learners</li><li>• Reflective practice</li></ul> |
|--|--|

Professional educators who transform the lives of all learners must enhance their knowledge and effectiveness with a clear **commitment** to children, families, colleagues, schools, and the profession. Candidates demonstrate commitment through their actions in several broad areas, such as:

- |   |  |
|---|--|
| <ul style="list-style-type: none"><li>• Positive impact on learners</li><li>• Ethics</li><li>• Leadership</li></ul> | <ul style="list-style-type: none"><li>• Collaboration</li><li>• Advocacy</li><li>• Professional identity and continuous growth</li></ul> |
|---|--|

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## Honors in Education

The purpose of the Honors in Education Program is to identify exceptional undergraduate students who, through uncompromising probity and intellectual vigor, deserve formal recognition of their extraordinary academic performance, skills, and dispositions. While many education students exhibit noteworthy behavior and achieve high academic standing, only honors students receive “Honors in Education” recognition recorded on their official academic transcript. Please visit [education.uncc.edu/honors](http://education.uncc.edu/honors) or the “Honors College” section of this *Catalog* for details.

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## Teacher Education Policies and Procedures

### Admission to Teacher Education Programs

Students must apply for admission to a specific teacher education program and complete the admissions process in order to enroll in any professional education courses at the 3000 level or above.

Minimum requirements for admission to all teacher education programs at UNC Charlotte include:

- 1) An overall GPA of at least 2.5 in a minimum of 45 credit hours in approved college-level courses (or approved program-specific requirements, such as 30 credit hours in approved college-level courses for the Elementary Education, Special Education, and Special Education/Elementary Education dual majors)
- 2) A grade of C or above in either EDUC 1100 or EDUC 2100, plus SPED 2100 (or approved program-specific requirements such as MDSK 2100 for the Minor in Secondary Education)
- 3) Passing scores on the Praxis Core: Academic Skills Assessments in Reading, Writing, and Mathematics; or an acceptable substitute score on the SAT or ACT
- 4) For Elementary, Special Education, and Special Education/Elementary Education dual majors, candidates must take the NC Foundations of General Curriculum test with the mathematics subtest
- 5) Completion and clearance on the Criminal Background Check
- 6) Signed Statement of Commitment to Professional Dispositions
- 7) Approval of the Chair (or his or her designee) of the department that offers the program

Some teacher education programs have additional requirements for admission (e.g., references, an interview, additional tests, discipline-specific coursework, audition). Information about additional requirements and procedures may be obtained in the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education. Students in Art, Dance, Music, or Theatre should contact the Arts Education Specialist for specific admission requirements in their major department.

### Professional Dispositions

Professional dispositions are consistent patterns of behavior or habits that may impact teaching effectiveness. At the time of entry to the program, all students are asked to sign a dispositions statement that fully identifies and describes behavior patterns that are appropriate and inappropriate in professional conduct. Education students are expected to demonstrate professional dispositions in all of their university activities (courses, clinicals, etc.).

### Retention in Teacher Education Programs

There are three minimum requirements for retention in a teacher education program:

- 1.) A grade of C or above (a) in all professional education courses *and* (b) in all courses in the student's area of teaching specialization
- 2.) GPA of 2.5 or above (a) overall, (b) in all professional education courses, *and* (c) in the student's area of teaching specialization
- 3.) Disclosure of any criminal charges since admission to the program

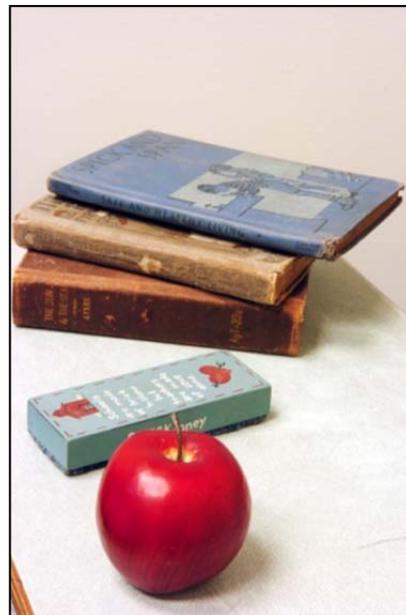
Some teacher education programs have additional or higher requirements for retention. Information about these additional requirements can be obtained in the program's home department. *Note: Requirements for admission to student teaching are higher than requirements for retention in the program.*

### Admission to Yearlong Internships and Student Teaching

Most undergraduate teacher education programs incorporate student teaching in a yearlong internship that spans a student's Senior year. The yearlong internship consists of one semester of intensive part-time clinical work in the classroom while completing coursework on campus. This clinical semester is followed by a semester of full-time student teaching, usually completed in the same classroom.

Students must apply and be formally admitted to a yearlong internship two semesters prior to the start of student teaching, which is typically in the second semester of the Junior year. In addition, during the first semester of their yearlong internship, students are screened for eligibility for student teaching. The minimum requirements for admission to student teaching are as follows:

- 1.) Senior status
- 2.) Prior admission to a teacher education program
- 3.) Completion of all other course work in a student's program of study
- 4.) An overall GPA of 2.50 or above in the student's total program of study
- 5.) Grades of C or above in all professional education courses and a GPA of 2.75 or above in those courses
- 6.) Grades of C or above in all courses in the student's area of teaching specialization and a GPA of 2.75 or above in those courses
- 7.) For Elementary, Special Education, and Special Education/Elementary Education dual majors, candidates must take the NC Foundations of Reading test
- 8.) A recommendation from the student's faculty advisor(s) certifying readiness to student teach



Some teacher education programs have additional requirements for admission to the yearlong internship and student teaching. Information about those requirements can be obtained from the program's home department. Information about procedures and deadlines for applying for yearlong internships and student teaching in all programs can be obtained in the Office of Field Experiences or online at [education.uncc.edu/ofe](http://education.uncc.edu/ofe).

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## Graduation and Licensure Requirements

For a degree to be conferred, a student must successfully complete all program requirements, which at a minimum includes:

- Grades of C or above in all professional education classes

For a recommendation of licensure:

- A grade of A or B in student teaching with recommendation from cooperating teacher, school administrator, and university supervisor
- A score of "Proficient" or "Accomplished" on all criteria for state required electronic evidences, including licensure test requirements

All teacher education programs require students to complete an electronic portfolio (required by the North Carolina Department of Public Instruction). In order to be recommended for licensure, students must successfully complete the electronic evidences required in their respective program(s). Information about the specific portfolio and electronic evidence requirements can be obtained in the program's home department.

Some teacher education programs have additional requirements for admission to the yearlong internship and student teaching. Information about those requirements can be obtained from the program's home department. Information about procedures and deadlines for applying for yearlong internships and student teaching in all programs can be obtained in the Office of Field Experiences or online at [education.uncc.edu/ofe](http://education.uncc.edu/ofe).

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## Academic Advising

The Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) serves and advises all students involved in teacher education programs prior to their admission to the major (pre-education students). TEALR is responsible for:

- Promotion of teacher education programs and recruitment of students prior to their admission to UNC Charlotte
- Collaboration with pre-education students and advisors at community colleges in North Carolina
- Orientation and academic advisement of pre-education students prior to their admission to a specific teacher education program (which typically occurs during their Sophomore year)
- Collaboration with departments within the College of Arts + Architecture and the College of Liberal Arts & Sciences concerning admission to teacher education programs when those departments have teacher education tracks or degrees
- Academic support services for both students and their faculty advisors as students admitted to a teacher education program progress through their programs, complete student teaching, and apply for licensure
- Management of all applications for teacher licensure
- Follow-up contacts with graduates for purposes of both program and product evaluation

In collaboration with academic departments involved in teacher education, the TEALR Office is the College of Education's central source of information about academic program requirements; criteria and procedures for admission to a specific teacher education program; student advising before admission to teacher education; schedules and applications for taking NC Foundations of Reading and General Curriculum, Praxis Core, and Praxis II examinations; requirements and procedures for obtaining licensure in North Carolina (or in other states that have reciprocity agreements with North Carolina); and final audits to ensure completion of all program and licensure requirements. For more details, visit [education.uncc.edu/tealr](http://education.uncc.edu/tealr).

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## Support Offices and Resources

### Center for Adolescent Literacies

The Center for Adolescent Literacies (CAL) at UNC Charlotte focuses on developing instruction to make literacy and learning relevant and effective for adolescents and those who work with them. The Center also conducts and supports research and service in support of its primary mission. Visit [literacy.uncc.edu](http://literacy.uncc.edu).

### Center for Educational Measurement and Evaluation

The Center for Educational Measurement and Evaluation (CEME) is a collaborative research center within the College of Education. CEME provides program evaluation services and statistical, methodological, and measurement expertise to schools and related agencies. Through CEME, faculty and students engage with educators in mutually beneficial projects that lead to evidence-based practices and improved educational outcomes and policy. Visit [ceme.uncc.edu](http://ceme.uncc.edu).

### Center for Science, Technology, Engineering, and Mathematics Education

The Center for Science, Technology, Engineering, and Mathematics Education (CSTEM) sponsors a wide variety of programs and projects that involve pre-service and in-service teachers and are designed to enhance the quality of instruction in science, technology, engineering, and mathematics, for both pre-college and university students. Visit [education.uncc.edu/cstem](http://education.uncc.edu/cstem).

### Office of Educational Outreach

The Office of Educational Outreach (OEO) serves to foster collaborative relationships between the university, surrounding schools, public agencies, and the community. Based within the College of Education, OEO functions to develop, support, formalize, monitor, and publicize the service activities and projects of UNC Charlotte faculty in the greater Charlotte-Mecklenburg region. OEO, in partnership with other departments and colleges, facilitates numerous conferences, institutes, professional development activities, and symposia to promote community involvement and education. Visit [education.uncc.edu/o eo](http://education.uncc.edu/o eo).

### **Office of Field Experiences**

The Office of Field Experiences (OFE) provides support services for school-based clinical experiences that students complete for courses and during yearlong internships and student teaching. Field experiences -- observing, interacting with, and teaching children and youth -- are a critical part of all undergraduate teacher education programs at UNC Charlotte. Early clinical experiences are required in specific courses and described in course syllabi. These field experiences continue throughout a student's program, progressing from observation and analysis to planning and implementing instruction to assessing learning outcomes with PK-12 students. Clinical field experiences culminate in a 15-week, full-time student teaching experience after completion of all other course work. Visit [education.uncc.edu/ofe](http://education.uncc.edu/ofe) for more information.

### **Special Facilities and Resources**

Examples that support the work of both faculty and students in undergraduate teacher education programs include:

- The College of Education Building includes *classrooms* for reading/language arts, science/mathematics, social studies, two computer classrooms, two open computer labs, a student lounge, and student study rooms.
- The freshman *Teacher Education Learning Community* is a one-year program for students who wish to become teachers. Community members take some General Education courses as a cohort group and participate in social activities, community service, and professional development activities.
- The College of Education has partnerships with *Professional Development Schools* in the region, which are public schools that work closely with the College to provide excellent clinical experience opportunities.
- The Atkins Library supports teacher education programs with a large children's literature collection and curriculum and instructional materials. Visit [library.uncc.edu](http://library.uncc.edu) for details on additional available resources.

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## **Financial Aid**

A number of scholarships and awards are available to undergraduate students in teacher education. Information about these awards is available online at [education.uncc.edu/coed-financial-aid](http://education.uncc.edu/coed-financial-aid), as well as in the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR). Examples of awards and programs that recognize the achievements of undergraduate students in teacher education programs include:

### **Alma and Sharon Goudes Educational Scholarship**

The Alma and Sharon Goudes Educational Scholarship, presented annually to highly capable men and women who have demonstrated their intention to teach English and/or mathematics in middle or secondary schools.

### **Bertha and Irvin Fishman Award**

The Bertha and Irvin Fishman Award, presented annually to an individual with a strong academic record who plans to teach at the middle school level.

### **Military Order of the Purple Heart Award**

The Military Order of the Purple Heart Award, presented annually by the American Association of Colleges for Education to a Junior majoring in programs in the College of Education who has shown scholarly achievement, teaching ability, and concern for the educational rights of children with disabilities.

### **North Carolina Alpha Chapter of Alpha Delta Kappa Memorial Scholarship**

The North Carolina Alpha Chapter of Alpha Delta Kappa Memorial Scholarship, awarded annually to a student who has been admitted to a teacher education program and demonstrated both outstanding academic performance and a commitment to teaching.

### **Phi Kappa Phi Scholar Award**

The Phi Kappa Phi Scholar Award, presented annually to a Junior majoring in a program in the College of Education who demonstrates outstanding leadership in an academic discipline and in research or independent study.

### **Ronald J. Anderson Memorial Scholarship**

The Ronald J. Anderson Memorial Scholarship, presented annually to an individual with strong academic achievement who has overcome significant physical disability.

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## Student Organizations

Examples of organizations that are especially relevant to undergraduate students in teacher education programs include:

- **Student National Education Association** - The Student National Education Association (SNEA), affiliated with the North Carolina Association of Educators (NCAE) and the National Education Association (NEA)
- **Student Council for Exceptional Children** - The Student Council for Exceptional Children (SCEC), affiliated with the Council for Exceptional Children (CEC)
- **College Middle Level Association** - The College Middle Level Association promotes excellent teaching in the middle grades and support for middle grades teacher candidates
- **Omicron Pi Chapter of Kappa Delta Pi** - The Omicron Pi Chapter of Kappa Delta Pi is an international honor society in education for undergraduate and graduate students. To qualify for membership, undergraduate students must have a 3.5 cumulative GPA, 30 credit hours, and admission to teacher education. Graduate students must have a 3.75 cumulative GPA, 18 credit hours, and majoring in a field of education.

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## Department of Counseling

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<http://counseling.uncc.edu>

Please see the *UNC Charlotte Graduate Catalog* for graduate programs and degrees related to the Department of Counseling.

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## Department of Educational Leadership

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<http://edld.uncc.edu>

Please see the *UNC Charlotte Graduate Catalog* for graduate programs and degrees related to the Department of Educational Leadership.

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## Department of Middle, Secondary, and K-12 Education

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<http://mdsk.uncc.edu>

The Department of Middle, Secondary, and K-12 Education offers programs leading to a Bachelor of Arts degree in Middle Grades Education; Minors in Secondary Education and Foreign Language Education; teaching licensure in Middle Grades, Secondary, and K-12 (foreign language) Education through

Graduate Certificate in Teaching and Master of Arts in Teaching Programs; a Master's of Education degree in Middle Grades Education, Secondary Education, and Teaching English as a Second Language; and a



Ph.D. in Curriculum and Instruction. (See the *UNC Charlotte Graduate Catalog* for details on the graduate programs.)

More than ever, the teaching profession offers college graduates exciting opportunities and challenges. The undergraduate teacher education programs offered by the department provide the first crucial step in career development for aspiring teachers of grades 6-9 (middle grades), 9-12 (secondary), and K-12 (foreign languages).

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### Bachelor of Arts in Middle Grades Education

The B.A. program in Middle Grades Education qualifies graduates for the Standard Professional 1 (SP1) Professional Educator's License in two of the following four content areas in grades 6-9: English language arts, mathematics, science, or social studies. Graduates of the program are prepared to meet the North Carolina Professional Teaching Standards and

the ten Interstate New Teachers Assessment and Support Consortium (INTASC) Standards for new teachers in Content Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, and School and Community Involvement. Graduates have specific coursework and clinical experiences in a variety of settings in order to learn and apply evidence-based knowledge and practices in the field of adolescent development and middle grades education.

### **Additional Admission Requirements**

See the Admission to Teacher Education Programs heading at the beginning of the College of Education section.

### **Degree Requirements**

The Major in Middle Grades Education leading to the B.A. degree requires a minimum of 120-125 credit hours.

### **General Education Courses (31-35 credit hours)**

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education requirements and also satisfy courses in one of the concentration areas within the major:

#### ***Science Concentration***

Select any two courses listed in the concentration to meet both Natural Science and concentration requirements.

#### ***Mathematics Concentration***

Select the following to meet both Mathematics and Logical Reasoning and concentration requirements:

MATH 1120 Calculus (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
or STAT 1222 Introduction to Statistics (3)

#### **Foundation Courses (6-7 credit hours)**

EDUC 2100 Foundations of Education and Diversity in Schools (3)\*  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)\*  
SPED 2100 Introduction to Students with Special Needs (3)\*

*\*SPED 2100 and either EDUC 1100 or EDUC 2100 should be taken no later than a student's Sophomore year; both must be completed with a grade of C or above to qualify for admission to the Teacher Education Program.*

### **Major Courses (38 credit hours)**

Admission to Teacher Education and advisor approval are required in order to register for any of the following courses:

EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)  
MDLG 3130 The Early Adolescent Learner (4)  
MDLG 3131 The Philosophy and Curriculum of Middle Grades Education (4)  
MDLG 4440 Student Teaching/Seminar: 6-9 Middle Grades Education\*  
MDSK 3151 Instructional Design and Technology Integration (3)  
MDSK 4150 Assessment, Reflection, and Management Practices (3)  
READ 3255 Integrating Reading and Writing Across Content Areas (3)

Plus two of the following courses, according to selected areas of concentration:

ENGL 4254 Teaching English/Communication Skills to Middle and Secondary School Learners (3)  
MAED 4232 Teaching Mathematics to Middle School Learners (3)  
MDSK 4251 Teaching Science to Middle and Secondary School Learners (3)  
MDSK 4253 Teaching Social Studies to Middle and Secondary School Learners (3)

*\*Enrollment in MDLG 4440 requires admission to student teaching through the College's Office of Field Experiences.*

### **Concentration Courses (42-44 credit hours)**

*Select two of the following Academic Concentrations and their courses relevant to a middle grades classroom:*

#### ***Mathematics (21 credit hours)***

MATH 1120 Calculus (3)  
or MATH 1241 Calculus I (3)  
MATH 2340 Number Concepts and Relationships (3)  
MATH 2341 Algebra and Algebraic Structures (3)  
MATH 2342 Data Analysis and Probability (3)  
MATH 2343 Geometry and Measurement (3)  
MATH Elective Course  
STAT 1220 Elements of Statistics I (BUSN) (3)  
or STAT 1222 Introduction to Statistics (3)

#### ***Science (23 credit hours)***

BIOL 1110 Principles of Biology I (3)  
BIOL 1110L Principles of Biology I Laboratory (1)  
BIOL 1115 Principles of Biology II (3)  
CHEM 1111 Chemistry in Today's Society (3)  
CHEM 1111L Laboratory in Chemistry (1)  
ESCI 1101 Earth Sciences-Geography (3)  
ESCI 1101L Earth Sciences-Geography Laboratory (1)

GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Laboratory (1)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Laboratory (1)

**English/Communication Skills (21 credit hours)**

ENGL 2100 Writing About Literature (3)  
ENGL 3104 Literature for Adolescents (3)  
ENGL 4200 Teaching of Writing (3)  
ENGL 3132 Introduction to Contemporary American English (3)  
Two literature courses approved by academic advisor

*Plus one of the following Diverse Literature Courses:*

ENGL 3236 African American Literature, Harlem Renaissance to Present (3)  
ENGL 3237 Modern and Recent U.S. Multiethnic Literature (3)  
ENGL 4104 Multiculturalism and Children's Literature (3)  
ENGL 4201 Teaching of Multiethnic Literature (3)

*Plus one of the following Writing and Rhetoric Courses:*

ENGL 4204 Expository Writing (3)  
ENGL 4270 Studies in Writing, Rhetoric, and Literacy (3)  
ENGL 4271 Studies in Writing, Rhetoric, and New Media (3)  
ENGL 4272 Studies in the Politics of Language and Writing (3)  
ENGL 4273 Studies in Writing, Rhetoric, and Identity (3)

**Social Studies (21 credit hours)**

HIST 1121 European History Since 1660 (3)  
HIST 1160 U.S. History to 1865 (3)  
HIST 1161 U.S. History Since 1865 (3)  
HIST 2297 History of North Carolina, 1500 to the Present (3)  
HIST xxxx Latin American History Elective (3)  
HIST xxxx African History Elective (3)  
HIST xxxx Asian History Elective (3)

**Unrestricted Electives**

As needed.

**Degree Total = 120-125 Credit Hours**

**Academic Advising**

Freshmen and Sophomores who intend to major in Middle Grades Education are classified as Pre-Education students in Middle Grades Education. They are assigned an advisor in the College's Office of Teacher Education Advising, Licensure, and Recruitment (TEALR), who helps them select appropriate General Education and Academic Concentration courses and who helps them meet the requirements for admission to teacher education.

Upon admission to the Teacher Education Program in Middle Grades Education, which typically occurs at the end of the Sophomore year, students are assigned a major advisor in Middle Grades Education, who helps them plan the remainder of their program of studies. Assignment of the student's major advisor is the responsibility of the Chair of the Department of Middle, Secondary, and K-12 Education (MDSK).

**Grade Requirements**

Grades of C or above in all professional education courses are required. An education degree minimum GPA of 2.75 and a minimum academic concentration content GPA of 2.75 are required.

Recommendation for licensure must include:

- o A grade of A or B in student teaching with recommendation from Cooperating Teacher, University Supervisor, and Principal
- o A score of "Proficient" or "Accomplished" on all criteria for state-required electronic evidences

**Honors Program**

For details about the Honors Program in Education, see the beginning of the College of Education section.

**Internship**

Students are required to complete a yearlong internship beginning the semester prior to student teaching and ending upon the successful completion of student teaching.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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**Minor in K-12 Foreign Language Education**

A Minor in K-12 Foreign Language Education requires 33 credit hours, including two 3-hour foreign language methodology courses and 15 hours for the student teaching semester.

**Admission Requirements**

Students wishing to minor in K-12 Foreign Language Education must be approved for admission to the minor by meeting statewide teacher education program admission requirements. Advising and admission to the minor are administered through the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education. The criteria for admission include 45 earned credit hours, a GPA of 2.5 or above, a major in a foreign language for which there is teacher licensure (French, German and Spanish), a grade of C or above in either MDSK 2100

or EDUC 1100/EDUC 2100 and SPED 2100, passing scores on the SAT, ACT, or Praxis Core tests, and the recommendation of their major advisor. After admission to the minor, advising is offered through the Department of Middle, Secondary, and K-12 Education in collaboration with advising in the student's major department. The minor is designed to be coordinated with Junior and Senior level coursework in the major, with the final semester being full-time student teaching. Successful completion of the minor will lead to a recommendation for the initial teaching license in the K-12 subject area associated with the student's major (French, German, or Spanish).

## Minor Requirements

### Pre-Internship (9 credit hours)

MDSK 3151 Instructional Design and Technology Integration (3)

SECD 4140 Adolescence and Secondary Schools (3)

FLED 4200 Secondary Methods - Foreign Languages (3)

or FLED 4201 K-8 Methods - Foreign Languages (3)

### Yearlong Internship (24 credit hours)

Students are required to complete a yearlong internship beginning the semester prior to the student teaching semester and ending upon the successful completion of the student teaching semester. Application to the yearlong internship should be submitted to the Office of Field Experiences during the first semester of education coursework. Deadlines are posted on the Office of Field Experiences website.

Major/Content advisor recommendation is required for beginning the Yearlong Internship in Semester 2 of program course sequence. Requirements include:

- GPA of 2.75 in the major/licensure, with grades of C or above, can be attained before the student teaching semester
- Documentation of Major/Content Planning Sheet for Student Folder in the Department of Middle, Secondary, and K-12 Education

READ 3255 Integrating Reading and Writing Across Content Areas (3) (W)

EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)

or EDUC 4291 Modifying Instruction for Learners with Diverse Needs in Secondary Schools (3)

FLED 4200 Secondary Methods - Foreign Languages (3)

or FLED 4201 K-8 Methods - Foreign Languages (3) (*the course not previously taken*)

MDSK 4150 Assessment, Reflection, and Management Practices (3)\*

FLED 4469 Student Teaching/Seminar: K-12 Foreign Language (12)\*

*\*Enrollment in MDSK 4150 and FLED 4469 requires admission to student teaching through the College's Office of Field Experiences, a GPA of 2.75 in the major, licensure area, and in professional education courses with no grades lower than a C, a 2.5 cumulative GPA, and a minimum score of advanced-low on the Oral Proficiency Interview (OPI).*

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## Minor in Secondary Education

The programmatic purpose of the Minor in Secondary Education is to prepare excellent and reflective teacher candidates in the fields of English, Mathematics, Comprehensive Science, and Comprehensive Social Studies to successfully utilize 21st Century knowledge, skills, and dispositions for addressing the demands of an ever-changing global and ethnically diverse society, community, and classroom while implementing effective, research-based content pedagogy to meet the individual cognitive and emotional needs of all students, and systematic and reflective analysis of connections between practice and student learning.

## Program Requirements

A Minor in Secondary Education requires 33 hours, including a 3-hour introductory course and 15 hours for the student teaching semester. Students wishing to minor in Secondary Education must be approved for admission to the minor by meeting statewide teacher education program admission requirements. Advising and admission to the minor are administered through the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education. The criteria for admission include 45 earned credit hours, a GPA of 2.5 or above, a major in a subject area for which there is teacher licensure (English, math, biology, chemistry, earth sciences, physics, history, and geography), a grade of C or above in MDSK 2100, passing scores on the SAT, ACT, or Praxis Core tests, and the recommendation of their major advisor. After admission to the minor, advising is offered through the Department of Middle, Secondary, and K-12 Education in collaboration with advising in the student's major department. The minor is designed to be coordinated with Junior and Senior level coursework in the major, with the final semester as the student teaching semester, which combines a frontloaded pedagogy course (MDSK 4150) and full-time student teaching. Successful completion of the minor will lead to a recommendation for the initial teaching license in the high school subject area associated with the student's major.

The Minor in Secondary Education qualifies graduates for an entry-level (Standard Professional I) license to

teach in one of the following subject areas in grades 9-12: English, Biology, Chemistry, Comprehensive Science, Comprehensive Social Studies, Earth Science, Physics, or Mathematics. Students major in an appropriate Arts and Sciences discipline and minor in secondary education through completion of a three-semester sequence of courses, which includes a yearlong internship incorporating the student teaching semester. The Comprehensive Social Studies license builds on a major in History or Geography; the Comprehensive Science license builds on a Major in Biology, Chemistry, Earth Science, or Physics.

### Program Objectives

Graduates of the Minor in Secondary Education are prepared to meet the state and national standards for new teachers in the following areas: content and content pedagogical knowledge; authentic applications of instructional design; effective integration of advanced and emerging technologies; respectful learning environments for a diverse student population; facilitation of learning for all students through collaboration and use of multiple instructional strategies; student motivation and management; purposeful and reflective practice; systematic formative and summative assessment; and leadership in schools, community, and profession.

### Degree Requirements

The undergraduate Minor in Secondary Education requires a major in the College of Liberal Arts & Sciences in a discipline relevant to the curriculum in grades 9-12 and a maximum of 128 hours as follows:

#### General Education (32-38 hours)

For details on required courses, refer to the General Education program. These course requirements vary with a student's academic major in Arts and Sciences and are defined by faculty in each major.

#### Core & Related Courses in an Appropriate Liberal Arts & Sciences Major (30-78 hours)

Academic majors relevant to secondary education include English, Geography, History, Mathematics, Biology, Chemistry, Earth Sciences, and Physics. The requirements for each major are defined by faculty in that major.

#### Secondary Education (33 hours)

MDSK 2100 (Foundations of Education and Diverse Youth in Secondary Schools) should be taken prior to a student's final three semesters and must be completed with a grade of C or above for the student to qualify for admission to the Teacher Education Program in the selected field of secondary education. Other admission requirements include an overall GPA of at least 2.5 and passing scores on the Praxis Core examinations (or acceptable SAT or ACT scores). Students should

consult with an advisor in Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) as soon as they begin considering teacher education in order to graduate on time.

Admission to Teacher Education and Middle, Secondary, K-12 Education Department (MDSK) advisor's approval are required in order to register for any of the following courses:

#### Semester 1

SECD 4140 Adolescence and Secondary Schools (3)  
MDSK 3151 Instructional Design and Technology Integration (3)

Students are required to complete a yearlong internship beginning the semester prior to the student teaching semester and ending upon the successful completion of the student teaching semester.

Application to the yearlong internship should be submitted to the Office of Field Experiences



during the first semester of education coursework. Deadlines are posted on the Office of Field Experiences website.

Major/Content advisor recommendation is required for beginning the Yearlong Internship in Semester 2 of program course sequence. Requirements include:

- GPA of 2.75 in the major/licensure, with grades of C or above, can be attained before the student teaching semester
- Documentation of Major/Content Planning Sheet for Student Folder in the Department of Middle, Secondary, and K-12 Education

#### Semester 2

##### (First Semester of Yearlong Internship)

EDUC 4291 Modifying Instruction for Learners with Diverse Needs in Middle/Secondary Schools (3)  
READ 3255 Integrating Reading and Writing Across Content Areas (W) (3)

One of the following content specific methods courses:

MAED 4252 Teaching Mathematics to Secondary School Learners (3)  
MDSK 4251 Teaching Science to Middle and Secondary School Learners (3)  
MDSK 4253 Teaching Social Studies to Middle and Secondary School Learners (3) (SL)  
ENGL 4254 Teaching English/Communication Skills to

Middle and Secondary School Learners (3)

### Semester 3

#### (Second Semester of Yearlong Internship)

Enrollment in MDSK 4150 and any one of these four student teaching courses requires admission to student teaching through the College's Office of Field Experiences, a GPA of 2.75 in the major, licensure area, and in professional education courses with no grades lower than a C, and a 2.5 cumulative GPA.

MDSK 4150 Assessment, Reflection, and Management Practices for Teachers of Middle and Secondary Learners (3)

SECD 4451 Student Teaching/Seminar: 9-12 Secondary English (12) (O)

SECD 4452 Student Teaching Seminar: 9-12 Secondary Mathematics (12) (O)

SECD 4453 Student Teaching/Seminar: 9-12 Secondary Science (12) (O)

SECD 4454 Student Teaching/Seminar: 9-12 Secondary Social Studies (12) (O)

### Elective Courses

These courses must be approved by the student's advisor.

### Additional Program Requirements

For a degree to be conferred, students must successfully complete all program requirements which include:

- Grades of C or above in all professional education courses
- Education degree minimum GPA of 2.75 and a minimum content GPA of 2.75
- Recommendation for licensure
  - A grade of A or B in student teaching with recommendation from Cooperating Teacher and University Supervisor
  - A score of "Proficient" or "Accomplished" on all criteria for state required electronic evidences

### Academic Advising

With the assistance of their major advisor in Arts and Sciences, students intending to seek a teaching license in an area of secondary education (grades 9-12) apply to the Teacher Education Program through the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education. Interested students are encouraged to visit TEALR at any time before applying to teacher education. Upon admission to the Teacher Education Program, which typically occurs at the end of the Sophomore year or beginning of the Junior year, students are assigned a secondary education advisor in the Advising Center of the Department of Middle, Secondary, and K-12 Education. This advisor has particular responsibility for

guidance about professional education coursework. Assignment of the student's Minor in Secondary Education advisor is the responsibility of the Chair of the Department of Middle, Secondary, and K-12 Education (MDSK).

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## Minor in Teaching English as a Second Language

A Minor in Teaching English as a Second Language (TESL) requires the completion of 18 credit hours of specialized coursework. This program is designed for students already seeking an initial license in another content area who wish to gain expertise in the education of English Language Learners in the K-12 public school setting. Students interested in pursuing TESL must be approved for admission to the minor by meeting statewide teacher education program admission requirements. Advising and admission to the minor are administered through the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.

Declaring the minor requires admission to a major or minor in a subject area for which there is teacher licensure (Elementary Education, Special Education, Secondary or Middle Grades Education, Foreign Language Education, etc.). After declaring the minor, advising is offered through the Department of Middle, Secondary, and K-12 Education in collaboration with advising in the student's major department. The minor is designed to be coordinated with Junior and Senior level coursework in the major, with the final semester that includes an advanced seminar/ practicum in TESL. Successful completion of the minor and passing licensure testing requirements lead to a recommendation for North Carolina add-on K-12 licensure in ESL.

### Minor Requirements

TESL 4103 - Methods in Teaching English as a Second Language (3)

TESL 4104 - Authentic Assessment (3)

TESL 4204 - Inclusive Classrooms for Immigrant Students (3)

TESL 4300 - Second Language Development in K-12 Classrooms (3)

or ENGL 3132 - Introduction to Contemporary American English (3)

TESL 4469 - Advanced Seminar/Practicum in Teaching English as a Second Language (3) \*

TESL 4600 - Literacy Development for Second Language Learners (3)

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## Minor in Urban Youth and Communities

The Minor in Urban Youth and Communities is an interdisciplinary program between the College of Education and the College of Liberal Arts & Sciences focused on civic engagement and service learning designed to prepare UNC Charlotte students to become informed and engaged citizens by providing opportunities to be agents of change in their community. The minor is open to all majors who seek to explore the strengths, capabilities, and issues of youth and communities in urban settings. Elective courses are concentrated in the areas of Urban Youth and Education, Communities, and Social Justice.

### Admission and Program Requirements

No minimum GPA is required for admission to the Minor in Urban Youth and Communities program. Additionally, although no course prerequisites are required for admission, some elective courses may have prerequisites. In courses applied to the minor, students must maintain a GPA of 2.0 or above.

The Minor in Urban Youth and Communities is open to all majors and can be declared at any time. The minor requires 15 credits, including two required courses for all students and an additional required course for Education majors. The minor also requires a capstone project (CUYC 3600) completed after all other minor requirements have been completed or with enrollment in required courses simultaneously with enrollment in capstone course.

### Required Courses

For all majors except education majors:

LBST 2215 Citizenship (3)  
CUYC 3600 Community Engagement Capstone Seminar (3) (SL)\*

For education majors only:

LBST 2215 Citizenship (3)  
EDUC 3200 Service Learning Teaching Methods for K-12 Educators (3)  
CUYC 3600 Community Engagement Capstone Seminar (3) (SL)\*

*\*To be completed after all other requirements are met.*

### Elective Courses (6-9 credit hours)

For the Minor in Urban Youth and Communities, 6-9 elective credit hours are required (6 credit hours if an Education major and taking EDUC 3200, 9 credit hours otherwise). One elective course (3 hours) must be chosen from each of the following areas: Urban Youth and Education, Communities, and Social Justice. Education majors will take an elective course only from the Communities and Social Justice areas.

### Urban Youth and Education Courses (3 credit hours)

*Select one of the following:*

AFRS 2208 Education of African Americans (3)  
CHFD 2111 Foundations in Child and Family Development (3)  
CJUS 2120 Juvenile Justice (3)  
EDUC 2100 Foundations of Education and Diversity in Schools (3)  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)  
EDUC 3200 Service-Learning Teaching Methods for K-12 Educators (3)  
MDSK 2100 Foundations of Education and Diverse Youth in Secondary Schools (3)  
PSYC 2120 Child Psychology (3)  
PSYC 2121 Adolescent Psychology (3)  
SOCY 4135 Sociology of Education (3)

### Communities (3 credit hours)

*Select one of the following:*

AFRS 2215 Black Families in the United States (3)  
AFRS 3280 Blacks in Urban America (3)  
ANTH 2125 Urban Anthropology (3)  
GEOG 2000 Social Inequality and Planning (3)  
GEOG 2200 Introduction to Urban Studies (3)  
GEOG 4220 Housing Policy (3)  
HIST 3281 American Cities (3)  
LTAM 1100 Introduction to Latin America (3)  
PSYC 3155 Community Psychology (3)  
RELS 3137 Religion in the African-American Experience (3)  
SOCY 4124 Sociology of the Community (3)

### Social Justice (3 credit hours)

*Select one of the following:*

AFRS 3101 Perspectives on Race and Ethnicity in the U.S. (3)  
ARSC 3480 Citizenship and Service Practicum (3)  
CJUS 3160 Domestic Violence (3)  
CJUS 4210 Gender, Race, and Justice (3)  
COMM 3136 Leadership, Service, and Ethics (3)  
HIST 3218 Racial Violence, Colonial Times to Present (3)  
PSYC 3806 Undergraduate Research Assistantship (3) (*Summer only*)  
SOCY 3143 Social Movements (3)  
SOCY 4111 Social Inequality (3)  
SOCY 4125 Urban Sociology (3)

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# Department of Reading and Elementary Education

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<http://reel.uncc.edu>

The Department of Reading and Elementary Education offers two initial K-6 licensure elementary education programs: a B.A. in Elementary Education for undergraduate students, and a Graduate Certificate Program to those that hold an undergraduate degree in another field. A Minor in Reading Education is offered for students already seeking initial license in another content area who wish to gain expertise in reading methods in the K-12 public school setting.

For previously-licensed teachers who wish to continue their education, there is a 33-hour M.Ed. in Elementary Education program. Designed for experienced



teachers, the M.Ed. in Reading Education qualifies graduates for the North Carolina Advanced Standard Professional II teaching license in K-12 reading education. Relevant to all areas of the K-12 curriculum, this program is designed for classroom teachers and aspiring literacy specialists who are interested in improving instructional programs and practices

that promote literacy among all learners. With further studies, there is also a Ph.D. in Curriculum and Instruction with concentrations in Reading Education and in Elementary Education. See the *Graduate Catalog* for details on these graduate degree programs.

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## Bachelor of Arts in Elementary Education

The B.A. program in Elementary Education qualifies graduates for Standard Professional 1 (SP1) Professional Educator's License in K-6 Elementary Education. Graduates of the program are prepared to meet the North Carolina Professional Teaching Standards (NCPTS) and the ten Interstate New Teachers Assessment and Support Consortium (INTASC) Standards for new teachers in Content

Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, School and Community Involvement. Graduates have specific coursework and clinical experiences in a variety of settings in order to learn and apply evidence-based knowledge and practices in the field of elementary education.

### Additional Admission Requirements

See the Admission to Teacher Education Programs heading at the beginning of the College of Education section.

### Degree Requirements

The Major in Elementary Education leading to the B.A. degree requires a minimum of 120 credit hours, including the completion of an approved minor.

### General Education Courses (31-35 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education requirements and also satisfy courses in the major:

BIOL 1110 Principles of Biology I (3)  
BIOL 1110L Principles of Biology I Laboratory (1)

### Foundation Courses (6-7 credit hours)

EDUC 2100 Foundations of Education and Diversity in Schools (3)\*  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)\*  
SPED 2100 Introduction to Students with Special Needs (3)\*

*\*SPED 2100 and either EDUC 1100 or EDUC 2100 should be taken no later than a student's Sophomore year; both must be completed with a grade of C or above to qualify for admission to the Teacher Education Program.*

### Major Courses (60 credit hours)

*Note: Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses.*

EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)  
ELED 3111 Instructional Design and the Use of Technology with Elementary School Learner (3)  
ELED 3120 The Elementary School Child (3)  
ELED 3221 Teaching Science to Elementary School Learners (3)  
ELED 3223 Teaching Social Studies to Elementary School Learners (3)

ELED 3226 Teaching Language Arts to Elementary School Learners (3)  
 ELED 4121 Measuring and Evaluating Learning in the Elementary School Curriculum (3)  
 ELED 4122 Research and Analysis of Teaching Elementary School Learners (3)  
 ELED 4220 Integrating Curriculum for Elementary School Learners (3)  
 ELED 4292 Multicultural Education: Modifying Instruction for Urban Learners (3)  
 ELED 4420 Student Teaching/Seminar: K-6 Elementary Education (15)  
 KNES 3221 Elementary Physical and Health Education (3)  
 MAED 3222 Teaching Mathematics in the Elementary School, K-2 (3)  
 MAED 3224 Teaching Mathematics in the Elementary School, 3-6 (3)  
 READ 3224 Teaching Reading to Primary Level Learners (3)  
 READ 3226 Teaching Reading to Intermediate Grade Learners (3)

### Related Courses (3 credit hours)

Select one creative arts activity course from the following, with a different area of emphasis from the LBST Arts and Society course:

- ARTB 1206 Conceptual Practices (3)
- ARTE 2121 Developmental Art (3)
- MUSC 2191 Incorporating Music Into the Elementary Classroom (3)
- THEA 1100 Exploration of Voice and Movement (3)
- THEA 1160 Creative Drama for the Classroom Teacher (3)
- Others approved by the advisor

### Minor

Students must complete an approved minor in an Arts and Sciences discipline. The minor selection must be initially approved by the student's Pre-Education advisor in the Teacher Education Advising, Licensure, and Recruitment Office (TEALR) and finally approved by the student's major advisor after admission to the Teacher Education Program in Elementary Education. With advisor approval, a full second major may be approved for this requirement.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Academic Advising

Freshmen and Sophomores who intend to major in Elementary Education are classified as Pre-Education students in Elementary Education. They are assigned

an advisor in the College's Office of Teacher Education Advising, Licensure, and Recruitment (TEALR), who helps them select appropriate General Education and Academic Concentration courses, and also helps them meet the requirements for admission to teacher education. Upon admission to the Teacher Education Program in Elementary Education, which typically occurs at the end of the Sophomore year, students will be advised in the Elementary Education Advising Center.

*Note: Elementary education courses are available on a very limited basis in the summer.*

### Additional Requirements

The successful completion of a degree in Elementary Education includes meeting the North Carolina Department of Public Instruction's licensure requirements for K-6 certification. Consequently, additional requirements must be completed during the student's program and are listed below. Since state licensure requirements often change, additional work may be required to complete the program with a teaching license.

### Planning Sheet

All elementary education students are tracked through their program with a Program Planning Sheet. The original planning sheet is kept in the student's folder and lists all courses taken, transfer hours, General Education and concentration requirements met, and courses remaining in the program. Note that the University requires that the minimum number of credits in a degree program is 120 credit hours.

### Clinicals

All courses in the professional program include a clinical requirement where students complete specific activities or designated hours in an elementary school. Clinicals are designed to expose students to diverse school demographics, locations, and programs.

### Grade Requirements

All Elementary Education (ELED) students must maintain a 2.5 GPA overall and a 2.75 GPA in their professional courses. All professional courses must be passed with a grade of C or above, and students may repeat a professional course once. Students may be dropped from a course if they register out of sequence.

### Honors Program

For details about the Honors Program in Education, see the beginning of the College of Education section.

### Internship

Teacher education candidates participate in the yearlong internship during their final year of the program. During the first semester, students spend one

day per week in an assigned classroom while completing coursework on campus. During the second semester of the internship, students complete full-time student teaching in the same classroom. Applications for this yearlong internship are due two semesters before student teaching.



### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Minor in Reading Education

A Minor in Reading Education requires the completion of 18 hours of specialized coursework. This program is designed for students already seeking initial license in another content area who wish to gain expertise in reading methods in the K-12 public school setting. Students interested in pursuing a Minor in Reading Education must be approved for admission to the minor by meeting statewide teacher education program admission requirements. Advising and admission to the minor are administered through the Office of Teacher Education Advising, Licensure, and Recruiting (TEALR).

Declaring the minor requires admission to a major or minor in a subject area for which there is teacher licensure (Elementary Education, Special Education, Secondary or Middle Grades Education, Foreign Language Education, etc.). After declaring the minor, advising is offered through the Department of Reading and Elementary Education in collaboration with advising in the student's major department. The minor is designated to be coordinated with Junior and Senior level coursework in the major. Successful completion of the minor and passing licensure testing requirements leads to a recommendation for North Carolina add-on K-12 license in Reading.

## Minor Requirements

### Core Courses (9 credit hours)

- READ 3224 Teaching Reading to Primary Level Learners (3)
- READ 4161 Assessment, Design, and Implementation of Classroom Reading (3)
- READ 4270 Investigating Reading Curriculum: Instructional Approaches, Materials, Methods, and Management (3)

### Elective Courses (9 credit hours)

#### *Explorations of Traditional and New Literacies*

Select one of the following:

- ENGL 2109 Children's Literature, Media, and Culture (3)
- ENGL 3102 Literature for Young Children (3)
- ENGL 3103 Children's Literature (3)
- ENGL 3104 Literature for Adolescents (3)
- ENGL 4102 Classics in British Children's Literature (3)
- ENGL 4103 Classics in American Children's Literature (3)
- ENGL 4104 Multiculturalism and Children's Literature (3)
- READ 4205 Reading and Writing Across Digital Spaces (3)

*Note: ENGL courses may be taken prior to admission to the minor.*

#### *Meeting the Needs of Unique Readers*

Select one of the following:

- SPED 4275 Teaching Reading to Elementary Learners with Special Needs (3)
- SPED 4276 Teaching Reading to Middle and Secondary Learners with Special Needs (3)
- TESL 4204 Inclusive Classrooms for Immigrant Students (3)
- TESL 4300 Second Language Development in K-12 Classrooms (3)
- TESL 4600 Literacy Development for Second Language Learners (3)

#### *Foundations in Reading II*

Select one of the following:

- READ 3226 Teaching Reading to Intermediate Grade Learners (3)
- READ 3255 Integrating Reading and Writing Across Content Areas (3)

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# Department of Special Education and Child Development

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<http://spcd.uncc.edu>

The mission of the Department of Special Education and Child Development is to prepare highly effective and ethical professionals who have a positive impact on children, youth, families, community, and schools and who are successful in urban and other diverse settings. This mission is accomplished through teaching, research, and community engagement that lead to improved practice and by working in partnership with schools, communities, and university colleagues.

The goals of the Special Education and Child and Family Development programs are to:

- Provide instruction at the undergraduate, masters, and doctoral levels that models research-validated best practice and challenges learners to aspire to excellence.
- Generate and synthesize knowledge through quality research that informs the preparation programs of the Department.
- Provide genuine and meaningful service to the public schools and other service providers that informs the preparation programs of the Department.



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## Bachelor of Arts in Special Education

The B.A. program in Special Education includes a choice of one of two licensure areas: (1) the Special Education: General Curriculum license or (2) the Special Education: Adapted Curriculum license. The Special Education: General Curriculum license qualifies graduates for the Standard Professional 1 (SP1) Professional Educator's License to teach children with special needs in grades K-12 with mild disabilities (i.e., learning disabilities, mild cognitive disabilities, and emotional/behavioral disabilities). The Special Education: Adapted Curriculum license qualifies graduates for the Standard Professional 1 (SP1) Professional Educator's License to teach children with special needs in grades K-12 with severe disabilities (i.e., significant cognitive disabilities, multiple disabilities).

Graduates of the program are prepared to: provide individually planned, systematically implemented, and carefully evaluated instruction for students with special needs; provide educational services to students with special needs in general classrooms, resource classrooms, and other educational settings; and help students with special needs achieve the greatest possible personal self-sufficiency and success in present and future environments. Graduates of the program are prepared to meet the North Carolina Professional Teaching Standards and the ten Interstate New Teachers Assessment and Support Consortium (INTASC) Standards for new teachers in Content Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, and School and Community Involvement.

### Additional Admission Requirements

See the Admission to Teacher Education Programs heading at the beginning of the College of Education section.

### Degree Requirements

The Major in Special Education leading to the B.A. degree requires a minimum of 120 credit hours.

### General Education Courses (31-35 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following course that meets general education requirements and also satisfies prerequisites for courses in the major:

PSYC 1101 General Psychology (3)

### Foundation Courses (6-7 credit hours)

EDUC 2100 Foundations of Education and Diversity in Schools (3)\*  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)\*  
SPED 2100 Introduction to Students with Special Needs (3)\*

*\*SPED 2100 and either EDUC 1100 or EDUC 2100 should be taken no later than a student's Sophomore year. Both courses must be completed with a grade of C or above to qualify for admission to the Teacher Education Program in Special Education.*

### Major Courses (54-60 credit hours)

#### Core Courses (36 credit hours)

Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses:

SPED 3100 Introduction to General Curriculum for Students with Special Needs (3)  
SPED 3173 Assessment in Special Education (3) (W)  
SPED 3175 Instructional Planning in Special Education (3)  
SPED 4170 Special Education: Consultation and Collaboration (3) (W)  
SPED 4270 Classroom Management (3)  
SPED 4272 Teaching Mathematics to Learners with Special Needs (3)  
SPED 4275 Teaching Reading to Elementary Learners with Special Needs (3)  
SPED 4277 Teaching Written Expression to Learners with Special Needs (3)  
SPED 4279 Content-Area Instruction for Students with Special Needs (3)  
SPED 4316 Transition Planning and Service Delivery (3)  
TESL 4204 Inclusive Classrooms for Immigrant Students (3)

*Plus select one of the following:*

CHFD 3115 An Ecological Approach to Learning and Development - Early Childhood to Pre-Adolescence (3)  
MDSK 3160 Learning and Development: Birth through Adolescence (3)  
PSYC 2120 Child Psychology (3)  
PSYC 2121 Adolescent Psychology (3)

#### Licensure Courses (18-24 credit hours)

*Select one of the following licensure areas:*

#### General Curriculum License Courses (18 credit hours)

SPED 4276 Teaching Reading to Middle and Secondary Learners with Special Needs (3)  
SPED 4475 Student Teaching/Seminar: Special Education K-12: General Curriculum (15) (O)\*\*

#### Adapted Curriculum License Courses (24 credit hours)

SPED 4271 Systematic Instruction in the Adapted Curriculum (3)  
SPED 4274 General Curriculum Access and Adaptations (3)  
SPED 4280 Multiple Disabilities (3)  
SPED 4476 Student Teaching/Seminar: Special Education K-12: Adapted Curriculum (15) (O)\*\*

*\*\*Enrollment in SPED 4475 or SPED 4476 requires admission to student teaching through the College's Office of Field Experiences.*

### Unrestricted Electives

It is recommended that students take content courses that will enable them to be labeled as "Highly Qualified" to teach content courses within a Special Education setting. Students should see an advisor for additional recommendations.

### Degree Total = 120 Credit Hours

### Academic Advising

Freshmen and Sophomores who intend to major in Special Education are classified as Pre-Education students in Special Education. These students are assigned an advisor in the College's Office of Teacher Education Advising, Licensure, and Recruitment (TEALR), who help students select appropriate General Education and elective courses, and who will help them meet the requirements for admission to teacher education. To be admitted to the Teacher Education Program in Special Education, students must have completed an admission application through the TEALR office, attained a grade of C or above in SPED 2100 and either EDUC 1100 or EDUC 2100, attained passing scores on all three parts of the Praxis Core test or acceptable alternatives (SAT or ACT scores), and attained an overall GPA of at least 2.5 in at least 30 credit hours of coursework.

Applications for admission to the Teacher Education Program in Special Education are available from and are to be returned to the TEALR office after a student has earned at least 30 credit hours of coursework. Students are then assigned a major advisor in special education who assists planning the remainder of the program of study, including selection of either one of the two licensure areas, or both licensure areas. Course selections for each subsequent semester must be approved by the student's advisor in special education.

### Additional Requirements

The successful completion of this degree program includes meeting the North Carolina Department of Public Instruction's licensure requirements for K-6 certification. Consequently, additional requirements

must be completed during the student's program and are listed below. Since state licensure requirements often change, additional work may be required to complete the program with a teaching license.

### **Planning Sheet**

All education students are tracked through their program with a Program Planning Sheet. The original planning sheet is kept in the student's folder and lists all courses taken, transfer hours, General Education and concentration requirements met, and courses remaining in the program. Note that the University requires that the minimum number of credits in a degree program is 120 credit hours.

### **Clinicals**

All courses in the professional program include a clinical requirement where students complete specific activities or designated hours in an appropriate setting. Clinicals are designed to expose students to diverse school demographics, locations, and programs.

### **Grade Requirements**

All students with an education major must maintain a 2.5 GPA overall and a 2.75 GPA in their professional courses. All professional courses must be passed with a grade of C or above, and students may repeat a professional course once. Students may be dropped from a course if they register out of sequence.

### **Honors Program**

For details about the Honors Program in Education, see the beginning of the College of Education section.

### **Internship**

Teacher education candidates participate in the yearlong internship during their final year of the program. During the first semester, students spend one day per week in an assigned classroom while completing coursework on campus. During the second semester of the internship, students complete full-time student teaching in the same classroom. Applications for this yearlong internship are due two semesters before student teaching.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Arts in Special Education – General Curriculum and Elementary Education K-6 Dual Program**

In addition to the traditional Special Education General Curriculum or Adapted Curriculum K-12 Program

options, the Department of Special Education and Child Development in collaboration with the Department of Reading and Elementary Education also offers a B.A. in Special Education - General Curriculum and Elementary Education K-6 Dual Program. The Special Education - General Curriculum and Elementary Education K-6 Dual Program qualifies graduates for the Standard Professional 1 (SP1) Professional Educator's License in Special Education General Curriculum K-6 and Elementary Education K-6. Graduates from the Dual Program will be licensed to teach children with mild disabilities in grades K-6. Additionally, the Dual Program qualifies graduates for entry level positions in the elementary general education classroom in grades K-6.

Graduates of the Special Education - General Curriculum and Elementary Education K-6 Dual Program are prepared to: provide individually planned, systematically implemented, and carefully evaluated instruction for students with disabilities; provide educational services to students with disabilities in general classrooms, resource classrooms, and other educational settings; and help students with disabilities achieve the greatest possible personal self-sufficiency and success in present and future environments. Graduates of the program are prepared to meet the North Carolina Professional Teaching Standards and the ten Interstate New Teachers Assessment and Support Consortium (INTASC) Standards for new teachers in Content Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, and School and Community Involvement. Graduates will have specific coursework and clinical experiences in a variety of settings in order to learn and apply evidence-based knowledge and practices in the fields of special education and elementary education.

### **Additional Admission Requirements**

See the Admission to Teacher Education Programs heading at the beginning of the College of Education section.

Freshmen and Sophomores who intend to apply for the Special Education - General Curriculum and Elementary Education K-6 Dual Program are classified as Pre-Education students in the Dual Program. These students are assigned an advisor in the College's Office of Teacher Education Advising, Licensure, and Recruitment (TEALR), who help students select appropriate General Education courses and who will help them meet the requirements for admission to teacher education. To be admitted to the Teacher Education Program in the Special Education - General Curriculum and Elementary Education K-6 Dual Program, students must have completed an admission

application through the TEALR office, attained a grade of C or above in SPED 2100 and either EDUC 1100 or EDUC 2100, attained passing scores on all three parts of the Praxis Core test or acceptable alternatives (SAT or ACT scores), and attained an overall GPA of at least 2.5 in at least 30 credit hours of coursework with grades of C or above in General Education requirements. In addition, all applicants must submit a professional goals statement detailing their interest in obtaining dual licensure. Pre-advisor's recommendation and approval (TEALR Advisor) are necessary.

Applications for admission to the Teacher Education Program in the Special Education - General Curriculum and Elementary Education K-6 Dual Program are available from and are to be returned to the TEALR office.

The Special Education - General Curriculum and Elementary Education K-6 Dual Program accepts 30 students per academic year. Once 30 applicants have been accepted into the Dual Program, the application process is closed. Students cannot apply to the Dual Program once they have already taken courses in another education program. Applications are reviewed first by the TEALR office to determine that minimal acceptance requirements have been met. A second review of applications occurs by the Director of the Dual Program.

### **Degree Requirements**

The Major in Special Education - General Curriculum and Elementary Education K-6 Dual Program leading to the B.A. degree requires a minimum of 121-126 credit hours.

### **General Education Courses (31-35 credit hours)**

For details on required courses, refer to the General Education program.

### **Foundation Courses (9-10 credit hours)**

EDUC 2100 Foundations of Education and Diversity in Schools (3)\*  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)\*  
SPED 2100 Introduction to Students with Special Needs (3)\*

*\*SPED 2100 and either EDUC 1100 or EDUC 2100 should be taken prior to a student's Sophomore year. Both courses must be completed with a grade of C or above to qualify for admission to the Teacher Education Program in the Special Education - General Curriculum and Elementary Education K-6 Dual Program.*

### **Major Courses (81 credit hours)**

Admission to Teacher Education and advisor approval are required in order to register for any of the following courses:

ELED 3111 Instructional Design and Technology Integration with Elementary School Learners (3)  
ELED 3120 The Elementary School Child (3)  
ELED 3221 Teaching Science to Elementary School Learners (3)  
ELED 3223 Teaching Social Studies to Elementary School Learners (3)  
ELED 3226 Teaching Language Arts to Elementary School Learners (3) (W)  
ELED 4121 Measuring and Evaluating Learning in the Elementary School Curriculum (3)  
ELED 4122 Research and Analysis of Teaching Elementary School Learners (3)  
ELED 4220 Integrating Curriculum for Elementary School Learners (3)  
KNES 3221 Elementary Physical and Health Education (3)  
MAED 3222 Teaching Mathematics to Elementary School Learners, Grades K-2 (3)  
MAED 3224 Teaching Mathematics to Elementary School Learners, Grades 3-6 (3)  
READ 3224 Teaching Reading to Primary Level Learners (3)  
READ 3226 Teaching Reading to Intermediate Grade Learners (3)  
SPED 3173 Assessment in Special Education (3) (W)  
SPED 3175 Instructional Planning in Special Education (3)  
SPED 4270 Classroom Management (3)  
SPED 4272 Teaching Mathematics to Learners with Special Needs (3)  
SPED 4275 Teaching Reading to Elementary Learners with Special Needs (3)  
SPED 4277 Teaching Written Expression to Learners with Special Needs (3)  
SPEL 3100 Introduction to Special Education and Dual Program (3)\*\*  
SPEL 4171 Special Education: Consultation and Collaboration in Elementary Schools (3) (W)  
SPEL 4477 Student Teaching/Seminar: Special Education General Curriculum and Elementary Education K-6 (Dual Program) (15) (O)  
TESL 4204 Inclusive Classrooms for Immigrant Students (3)

*\*\*This course is an important and required introduction to the Dual Program, and it must be completed during the Fall semester of the student's Sophomore year.*

### **Related Courses (3 credit hours)**

Select one of the following:

ARTE 2121 Developmental Art (3)

MUSC 2191 Incorporating Music Into the Elementary Classroom (3)  
THEA 1100 Exploration of Voice and Movement (3)  
THEA 1160 Creative Drama for the Classroom Teacher (3)  
Others approved by academic advisor

### **Unrestricted Elective Courses**

As needed.

## **Degree Total (121-126 credit hours)**

### **Academic Advising**

During the duration of the program, students are advised by the Director of the Special Education - General Curriculum and Elementary Education K-6 Dual Program. Students accepted into the Special Education - General Curriculum and Elementary Education K-6 Dual Program are required to attend advising sessions each semester during the program.

### **Additional Requirements**

The successful completion of this degree program includes meeting the North Carolina Department of Public Instruction's licensure requirements for K-6 certification. Consequently, additional requirements must be completed during the student's program and are listed below. Since state licensure requirements often change, additional work may be required to complete the program with a teaching license.

### **Planning Sheet**

All education students are tracked through their program with a Program Planning Sheet. The original planning sheet is kept in the student's folder and lists all courses taken, transfer hours, General Education and concentration requirements met, and courses remaining in the program. Note that the University requires that the minimum number of credits in a degree program is 120 credit hours.

### **Clinicals**

All courses in the professional program include a clinical requirement where students complete specific activities or designated hours in an appropriate setting. Clinicals are designed to expose students to diverse school demographics, locations, and programs.

### **Grade Requirements**

All students with an education major must maintain a 2.5 GPA overall and a 2.75 GPA in their professional courses. All professional courses must be passed with a grade of C or above, and students may repeat a professional course once. Students may be dropped from a course if they register out of sequence.

## **Honors Program**

For details about the Honors Program in Education, see the beginning of the College of Education section.

## **Internship**

Teacher education candidates participate in the yearlong internship during their final year of the program. During the first semester, students spend one day per week in an assigned classroom while completing coursework on campus. During the second semester of the internship, students complete full-time student teaching in the same classroom. Applications for this yearlong internship are due two semesters before student teaching.

## **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Arts in Child and Family Development**

The B.A. program in Child and Family Development degree prepares graduates to work in educational and related settings that serve infants, toddlers, preschoolers, and kindergartners with and without disabilities, and their families. The program qualifies graduates for the Standard Professional 1 (SP1) Professional Educator's License in birth-kindergarten (B-K) education.

Graduates of the program are prepared to meet the North Carolina Professional Teaching Standards and the ten Interstate New Teachers Assessment and Support Consortium (INTASC) Standards for new teachers in Content Pedagogy, Student Development, Diverse Learners, Multiple Instructional Strategies, Motivation and Management, Communication and Technology, Planning, Assessment, Reflective Practice, and School and Community Involvement. Graduates have specific coursework and clinical experiences in a variety of settings in order to learn and apply evidence-based knowledge and practices in the field of early childhood development and education.

### **Additional Admission Requirements**

See the Admission to Teacher Education Programs heading at the beginning of the College of Education section.

### **Degree Requirements**

The Major in Child and Family Development leading to the B.A. degree requires a minimum of 120 credit hours.

### General Education Courses (31-35 hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education requirements and also satisfy prerequisites for courses in the major:

PSYC 1101 General Psychology (3)

SOCY 1101 Introduction to Sociology (3)

### Foundation Courses (6-7 hours)

EDUC 2100 Foundations of Education and Diversity in Schools (3)\*

or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)\*

SPED 2100 Introduction to Students with Special Needs (3)\*

*\*SPED 2100 and either EDUC 1100 or EDUC 2100 should be taken no later than a student's Sophomore year. Both courses must be completed with a grade of C or above to qualify for admission to the Professional Education Program in Child and Family Development.*

### Major Courses (63 hours)

CHFD 2111 Foundations in Child & Family Development (3)

CHFD 2113 Development: Prenatal to 36 Months (3)

CHFD 2412 The Practice of Observation, Documentation, and Analysis of Young Children's Behavior (3)

EIST 4100 Computer Applications in Education (3)

Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses:

CHFD 3112 Supporting Diverse Young Learners – Birth through Kindergarten (3)

CHFD 3113 Families as the Core of Partnerships (3)

CHFD 3114 Responsive Approaches for Infants and Toddlers (3)

CHFD 3115 An Ecological Approach to Learning and Development – Early Childhood to Pre-Adolescence (3)

CHFD 3116 Approaches to Integrated Curriculum for Young Children (3-8) (3)

CHFD 3118 Approaches to Family Supports and Resources (3) (W)

CHFD 3414 Language, Literacy, and Mathematical Thinking of Young Children: Birth-Kindergarten (3)

CHFD 3416 Internship: Child and Family Development (3)

CHFD 4410 Student Teaching/Seminar: B-K Child and Family Development (15) (O)\*\*

SPED 3210 Enhancing the Social-Emotional Development of Young Children in Inclusive Settings (3)

SPED 4111 Issues in Early Intervention for Young

Children with Disabilities (3)

SPED 4112 Authentic Approaches to the Assessment of Young Children with Disabilities: Birth-Kindergarten (3)

SPED 4210 Developmental Interventions for Young Children with Disabilities: Birth through Kindergarten (3)

*\*\*Enrollment in CHFD 4410 requires admission to student teaching through the College's Office of Field Experiences.*

### Restricted Elective Courses (12 hours)

#### ***Sociology of Marriage and Family Course***

*Select one of the following:*

SOCY 2132 Sociology of Marriage and the Family (3)

SOCY 2133 Sociology of Marriage and Family – Writing Intensive (3) (W)

#### ***Sociology Family Theme Course***

*Select one of the following:*

SOCY 4110 Sociology of Aging (3)

SOCY 4112 Sociology of Work (3)

SOCY 4124 Sociology of the Community (3)

SOCY 4131 Family Policy (3)

SOCY 4134 Families and Aging (3)

SOCY 4135 Sociology of Education (3)

SOCY 4165 Sociology of Women (3)

or other 4000-level SOCY course with approval

#### ***Psychology Courses***

*Select two of the following:*

PSYC 3116 Human Cognitive Processes (3)

PSYC 3123 Social and Personality Development (3)

PSYC 3135 Psychology of Personality (3)

or other 3000-level PSYC course that relates to cognitive, social, and/or personality development with approval

*Note: One elective course shall be designated (W) writing intensive.*

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Academic Advising

Students who intend to major in Child and Family Development and to earn B-K licensure are classified as Pre-Education students in Child and Family Development. These students are assigned an advisor in the College's Office of Teacher Education Advising, Licensure, and Recruitment (TEALR), who help students select appropriate General Education and elective courses, and who will help them meet the requirements for admission to teacher education. To be admitted to the Teacher Education Program in Child

and Family Development, students must have met the Additional Admission Requirements above.

Applications for admission to the Teacher Education Program in Child and Family Development are available from and are to be returned to the TEALR office after a student has earned at least 30 credit hours of coursework. Students are then assigned a major/minor advisor in child and family development who assists planning the remainder of the program of study. Course selections for each subsequent semester must be approved by the student's advisor in child and family development. Assignment of the student's major/minor advisor is the responsibility of the Child and Family Development Program Coordinator in the Department of Special Education and Child Development (SPCD).

### Additional Requirements

The successful completion of this degree program includes meeting the North Carolina Department of Public Instruction's licensure requirements for K-6 certification. Consequently, additional requirements must be completed during the student's program and are listed below. Since state licensure requirements often change, additional work may be required to complete the program with a teaching license.

### Planning Sheet

All education students are tracked through their program with a Program Planning Sheet. The original planning sheet is kept in the student's folder and lists all courses taken, transfer hours, General Education and concentration requirements met, and courses remaining in the program. Note that the University requires that the minimum number of credits in a degree program is 120 credit hours.

### Clinicals

All courses in the professional program include a clinical requirement where students complete specific activities or designated hours in an appropriate setting. Clinicals are designed to expose students to diverse school demographics, locations, and programs.

### Grade Requirements

All students with an education major must maintain a 2.5 GPA overall and a 2.75 GPA in their professional courses. All professional courses must be passed with a grade of C or above, and students may repeat a professional course once. Students may be dropped from a course if they register out of sequence.

### Honors Program

For details about the Honors Program in Education, see the beginning of the College of Education section.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Child and Family Development

The Minor in Child and Family Development provides opportunities for students to develop an overview of early learning and development, an understanding of early childhood issues, and insights into the role of families, as well as the role of child care in out-of-home experiences.

In order to declare the minor, students must have an overall GPA of at least 2.5. Students who declare the Minor in Child and Family Development are required to complete six courses with a GPA of at least 2.5 (and a grade of C or above in all courses) for a total of 18 credit hours.

### Program Requirements

- CHFD 2111 Foundations in Child & Family Development (3)\*
- CHFD 2113 Development: Prenatal to 36 Months (3)\*
- CHFD 2412 The Practice of Observation, Documentation, and Analysis of Young Children's Behavior (3)\*\*
- CHFD 3113 Families as the Core of Partnerships (3)
- SPED 3210 Enhancing the Social-Emotional Development of Young Children in Inclusive Settings (3)
- SPED 4111 Issues in Early Intervention for Young Children with Disabilities (3)

*\*CHFD 2111 and/or CHFD 2113 must be the first courses completed.*

*\*\*CHFD 2111 is a pre-/corequisite for CHFD 2412.*

Some of the required courses have prerequisites, so students should declare the minor as early as possible to plan their schedule. Students declaring the minor as Sophomores and Juniors can usually complete the degree on schedule. Students interested in the minor should begin taking classes *as early as possible* after declaration.

# The William States Lee *College of* Engineering



# The William States Lee *College of* Engineering

<http://enr.uncc.edu>

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The William States Lee College of Engineering's vision is that:

The College is ***the engineering college of first choice*** for students, faculty, staff, and industry partners discovering, integrating, applying, and disseminating knowledge.

The College provides quality educational experiences and discovers and disseminates knowledge that serves the citizens and industries of the Carolinas, and the national and the international communities.

The Lee College offers baccalaureate degree programs in Engineering, Engineering Technology, and Construction Management. On the graduate level, the College offers programs leading to master's degrees in Engineering, Construction and Facilities Management, Energy and Electromechanical Systems, Fire Protection and Administration, and Engineering Management; the Ph.D. in Electrical Engineering and in Mechanical Engineering; and an interdisciplinary Ph.D. in Infrastructure and Environmental Systems. For details on the graduate programs, refer to the *UNC Charlotte Graduate Catalog*.

The College of Engineering consists of the following departments:

- Department of Civil and Environmental Engineering
- Department of Electrical and Computer Engineering
- Department of Engineering Technology and Construction Management
- Department of Mechanical Engineering and Engineering Science
- Department of Systems Engineering and Engineering Management

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## Degree Programs Engineering Programs

The baccalaureate programs in engineering offer a professional engineering education that can be used as the foundation for several different career objectives: careers as professional engineers in industry, business, or consulting; graduate study to prepare for careers in research, development, or teaching; and a more general and more liberal engineering education with the objective of keeping a variety of career avenues open. The baccalaureate programs in civil, computer, electrical, mechanical, and systems engineering are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Whatever the career objective of the student, a sound engineering educational program ensures that graduates have: (a) an ability to apply knowledge of mathematics, science, and engineering; (b) an ability to design and conduct experiments, as well as to analyze and interpret data; (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability; (d) an ability to function on multidisciplinary teams; (e) an ability to identify, formulate, and solve engineering problems; (f) an understanding of professional and ethical responsibility; (g) an ability to communicate effectively; (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context; (i) a recognition of the need for, and an ability to engage in life-long learning; (j) a knowledge of contemporary issues; and (k) an ability to use the techniques, skills, and modern tools necessary for engineering practice. The course of study will involve the humanities, social sciences, physical sciences, mathematics, and engineering sciences and design. The student expecting to accept employment in industry may emphasize the engineering design and engineering science aspects of his or her program, while the student preparing for graduate study might emphasize the mathematics and science aspects. Some engineering graduates ultimately take on executive and management responsibilities in industries and firms that are based upon engineering products and engineering services. Such students may choose to construct an elective option in their program, including economics and business-related courses that strengthen their communication skills and other non-technical skills.

Engineering students are strongly encouraged to pursue the requirements for registration as a Professional Engineer (PE). The first step in the registration process is the successful completion of the Fundamentals of Engineering (FE) Examination. Students are encouraged to take this examination during their Senior year. Additional requirements for professional licensure subsequent to graduation include the accumulation of at least four years of progressive engineering experience and successful completion of the Professional Engineer Examination (PE Exam). Students who complete the Cooperative Education Program or who complete their master's degree only need three years of progressive engineering experience to be eligible to take the PE Exam in North Carolina.

### **Major Programs**

- Bachelor of Science in Civil Engineering (B.S.C.E.)
- Bachelor of Science in Electrical Engineering (B.S.E.E.)
- Bachelor of Science in Computer Engineering (B.S.Cp.E.)
- Bachelor of Science in Mechanical Engineering (B.S.M.E.)
- Bachelor of Science in Systems Engineering (B.S.S.E.)

### **Minor Programs**

- Minor in Electrical Engineering
- Minor in Computer Engineering

### **Engineering Technology Programs**

Engineering technology is the profession in which knowledge of mathematics and natural sciences gained by higher education, experience, and practice is devoted primarily to the implementation and extension of existing technology for the benefit of humanity. Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to the product improvement, manufacturing, construction, and engineering operational functions.

Engineering technology programs are characterized by their focus on application and practice and by their approximately equal mix of theory, practice, and laboratory experience. The baccalaureate programs in civil, electrical, and mechanical engineering technology are accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>.

Graduates of the engineering technology programs are recruited by most major technological companies in the U.S. They are employed across the technological spectrum but are best suited to areas that deal with application, implementation, production, and construction. Technical sales and customer service fields also account for many placements.

Engineering technology students are encouraged to pursue the requirements for registration as a Professional Engineer. The first step in the registration process is the successful completion of the Fundamentals of Engineering (FE) Examination. Students are encouraged to take this examination during their Senior year. Additional requirements for professional licensure following graduation include the accumulation of at least eight years of progressive experience and successful completion of the Professional Engineer Examination (PE Exam). Students who complete the Cooperative Education Program or who complete their master's degree only need seven years of progressive engineering experience to be eligible to take the PE Exam in North Carolina.

### **Major Programs**

- Bachelor of Science in Engineering Technology (BSET)

### **Construction Management Program**

Construction management provides the education necessary for entry into the construction industry in a variety of careers in the residential, commercial, and industrial sectors, as well as infrastructure, and heavy horizontal construction. Related careers in real estate and land development, infrastructure development, code enforcement, and insurance are also career options. The Construction Management program is accredited by the Engineering Technology Accreditation Commission of ABET, <http://www.abet.org>.

The program is enhanced by a business/management core that includes courses in statistics, computer applications, economics, accounting, engineering economics, business management, business law, finance, and construction law. The Construction Management program shares a common lower division (Freshman and Sophomore year) curriculum

with the Civil Engineering Technology Program. This provides a two-year opportunity to determine which program best fits the desired academic objective and allows students who are interested to complete a double major in both Construction Management and Civil Engineering Technology.

### Major Programs

- Bachelor of Science in Construction Management (BSCM)

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## Academic Progression Requirements and Dismissal Conditions

### Bachelor's Degree Programs and Advising in the College Of Engineering

Students may be admitted to a major in one of the five College of Engineering departments: Civil and Environmental Engineering (CEGR); Electrical and Computer Engineering (EEGR and CPGR); Mechanical Engineering and Engineering Science (MEGR); Systems Engineering and Engineering Management (SEGR); and Engineering Technology and Construction Management: Civil Engineering Technology (CIET), Construction Management (CMET), Electrical Engineering Technology (ELET), Fire Safety Engineering Technology (FSET), or Mechanical Engineering Technology (MEET). Students may also be admitted as Engineering Undecided (ENGR), or Engineering Technology Undecided (ETGR) majors.

*Engineering Undecided* (ENGR) and *Engineering Technology Undecided* (ETGR) are designations for new freshmen who qualify for admission to an engineering or engineering technology major but who have not decided which program they desire. ENGR students must work with their academic advisor to choose and declare a program of study by the completion of their Freshman year. ETGR students are encouraged to choose a major by the time they attend summer orientation and registration because they take discipline-specific courses in the Freshman year.

Students are expected to follow the advice and recommendations of their faculty advisors and are expected to know and follow all prerequisite, corequisite, and progression requirements of their program. Persistent attempts to circumvent that advice and guidance shall be grounds for dismissal by the College of Engineering.

Students must demonstrate that they are making satisfactory progress toward completion of their major degree. They are in violation of this requirement and subject to dismissal by the College of Engineering if they have two consecutive semesters of unsatisfactory progress.

Students in the engineering programs may take a course in their curriculum a maximum of three times, including withdrawing from the course with a grade of W. Failure to achieve a satisfactory grade in a course to progress in the program within the three allowed attempts will result in suspension from the engineering program.

### Freshman Year Requirements

All new freshmen are initially advised by a central office within the College of Engineering. Students must satisfy the following requirements in order to progress in the curriculum and matriculate to their major department.

- 1) Earn at least a 1.75 GPA in the first semester
- 2) Complete all non-elective courses in the Freshman year curriculum with grades of C or above
- 3) Pass all courses within three attempts, including withdrawing from a course with a grade of W
- 4) Complete the Freshman curriculum within three semesters, not including summer, if starting in the required first semester mathematics course
- 5) Earn a 2.5 cumulative GPA upon completion of the Freshman curriculum

### Sophomore through Senior Year Requirements

In addition to College and University requirements for continued enrollment, students must maintain a major cumulative GPA of 2.0 for all courses in the departmental curriculum. Failure to meet this requirement for two consecutive semesters will result in suspension from the College of Engineering.

### Requirements for Readmission to the College of Engineering after Dismissal

An undergraduate student who has been dismissed from the College of Engineering for failure to satisfy one or more of the progression requirements stated above, but who nonetheless meets the conditions for continued enrollment in the University, will be ineligible for readmission to the College until one of the following occurs:

- 1) An appeal is accepted through the College of Engineering

- 2) The student completes an Associate of Science (AS) degree for engineering or an Associate of Applied Science (AAS) degree for engineering technology
- 3) The student elects to use the Two-Year-Rule

A student who has been suspended by the University must follow University guidelines for appeal. Readmission to the College after dismissal or suspension is not automatic. An application for readmission must be made by the student and approved by the College/department. Students who are readmitted after dismissal by the College, suspension by the University, or under the Two-Year Rule must meet requirements for continued enrollment appropriate to their individual situation. These requirements are specified in a "Continuation Agreement" that is mutually agreed upon and signed by the student and his/her appropriate advisor. The consequences of failure to meet the requirements of the agreement may be articulated in the agreement itself. However, if these consequences are not included in the agreement, failure to meet the requirements will automatically result in the student's discontinuation from the College.

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## **Additional Engineering Programs and Opportunities**

### **Maximizing Academic and Professional Success Program (MAPS)**

The College's MAPS program assists students in developing the personal, academic, and professional skills needed for success. The program includes peer-led coaching to help students successfully transition into the college and assist them as they work to return to good academic standing. MAPS also offers Supplemental Instruction (SI), tutoring, workshops, and study groups. SI and/or tutoring are available for courses such as calculus, chemistry, and physics, and core College of Engineering courses as funding is available. Assessment results indicate that students who regularly participate in MAPS perform well academically and are much more likely to graduate from the College. For details, visit [osds.uncc.edu/maps](http://osds.uncc.edu/maps).

### **Freshman Learning Community (FLC)**

The FLC is home to more than 200 College of Engineering freshmen who live, study, and interact in a single residence hall. Students benefit from having similar interests and course schedules. In addition, MAPS peer coaching and tutoring for a variety of Freshman courses are offered on-site. Other events such as engineering site visits, special study nights, and social activities are also available to participants.

### **Student Leadership Academy**

The Leadership Academy is an optional extracurricular program designed to develop the leadership potential of College of Engineering students through a series of weekend retreats with other students, faculty, and industry partners. Top industry executives help facilitate specific activities providing some real-world perspective on being a successful leader in business and in the community. Students who fulfill all requirements of the program receive transcript notation.

### **Experiential Learning and Service Learning Opportunities**

Students are encouraged to participate in professional work experiences in support of their academic and career development through the cooperative education, 49ership (internship), and service learning programs offered to students in the College. The College works with the University Career Center to expand experiential learning offerings to enable more students to graduate with career related experience. For more information about experiential learning opportunities, see the University Career Center section of this *Catalog*.

### **Cooperative Education (Co-op) Program**

Students may obtain practical work experience while pursuing their degree by participating in cooperative education whereby a student alternates semesters of full-time academic study with semesters of full-time work experience in industry. Students may also do back-to-back Co-op experiences if their Fall or Spring Co-op session is combined with a summer session. The work experience is under the direction of the student's major department and is closely related to his or her field of study. Students who fulfill all requirements of the Co-op program receive transcript notation, can earn up to three credit hours for a technical elective, and will receive partial credit toward the professional practice requirement for registration as a Professional Engineer in North Carolina.

To be eligible for the Co-op program, a student must have completed at least 30 credit hours at UNC Charlotte including a number of specified courses with a minimum GPA of 2.5. A transfer student is expected to have completed at least 12 hours at UNC Charlotte.

For an undergraduate to be officially designated as a Co-op student, he or she must participate in at least three full-time semesters of work experience (three work sessions and three seminar courses). Consequently, participation in

Co-op Education usually means that graduation can be delayed up to one year. However, students who participate in Co-op traditionally are more highly recruited at higher starting salaries than other students.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the College's Director for Student Professional Development and Employer Relations or the University Career Center.

### **Domestic Internships**

A number of opportunities for non-credit internships, called 49erships and Service 49erships, exist for students at local and regional employers. Internships for College of Engineering students are almost always paid positions. A minimum of 80 work hours need to be completed in no less than five weeks for one semester to successfully complete the 49ership program. Fall and Spring 49erships are part-time. Summer 49erships may be full- or part-time. Full-time students who are in good University standing, have completed 30 credit hours, and have a 2.0 minimum cumulative GPA are eligible.

Internships do not offer academic credit, but students do receive transcript notation. Approval for enrollment must be arranged before the student begins the work experience, and students pay a course registration fee. Students may begin this program during their Sophomore year. Transfer students must complete 12 credit hours at UNC Charlotte before making application for the program.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the College's Director for Student Professional Development and Employer Relations or the University Career Center.

### **International Experiences**

The College provides opportunities for overseas study, research, and/or an industrial experience. In many cases, students who meet eligibility requirements receive special scholarships and/or grants to help defray the cost of these programs.

### **Fundamentals of Engineering (FE) Exam**

The first step in professional licensure is the FE exam. Students in ABET accredited programs may take the FE Exam at any time. The College encourages students to take and successfully pass this national examination during their Senior year.

### **Continuing Engineering Studies**

The College of Engineering sponsors various special educational programs for practicing engineers, technologists, technicians, and others, in addition to its regular academic degree programs and courses. These include conferences, short courses, seminars, and other continuing education programs designed to aid those practicing in the technical professions and occupations to keep abreast of the latest developments in the rapidly expanding technology. For more information, contact the Office of Extended Academic Programs.

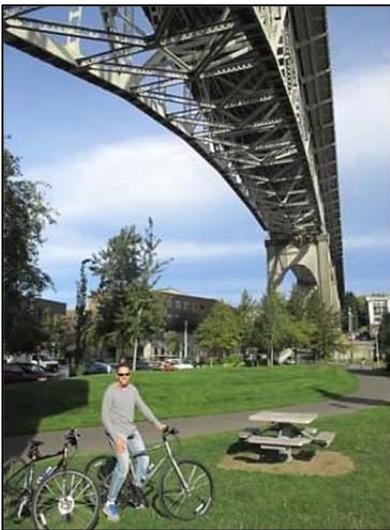
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# Department of Civil and Environmental Engineering

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<http://cee.uncc.edu>

A major role of civil engineers is to focus scientific and technological skills on the creation of physical facilities, the engineering and construction of which advance society toward such basic goals as economic development, environmental protection, and social well-being. Civil engineers may be involved in analysis, design, construction, and monitoring of: buildings, bridges, dams, and other structures; water resources for urban use, industry and land reclamation; systems



for water transmission and river control; water quality control systems for purification and waste treatment; transportation systems including highways, mass transit, airports, railroads, pipelines, canals, and harbor facilities; solutions for environmental problems including air

pollution, ground pollution, water pollution, noise pollution, ecological effects, land development, and urban and regional planning; and in subsurface foundation systems. Civil engineers must bring about a satisfactory blending of constructed facilities with the natural and social environments, creating an optimum relationship between humans and the environment while helping safeguard the health, safety, and welfare of the public.

## Degree Programs

The Department of Civil and Environmental Engineering offers a Bachelor of Science in Civil Engineering (B.S.C.E.) degree, a Master of Science in Civil Engineering (M.S.C.E.) degree, a Master of Science in Engineering (M.S.E.) degree, and a Doctor of Philosophy (Ph.D.) degree in Infrastructure and

Environmental Systems. Students may select a concentration within the B.S.C.E. to achieve individual goals. Concentrations within the B.S.C.E. include Energy Infrastructure, Environmental/Water Resources Engineering, Geotechnical Engineering, Land Development Engineering, Structures, and Transportation. For information about the graduate programs, see the *UNC Charlotte Graduate Catalog*.

## Objectives

The civil engineering program educational objectives describe achievements to be attained by graduates during the first few years after graduation:

- Pursue careers in the civil and environmental engineering profession or another profession or emerging area;
- Apply mathematics and physical and social sciences, use engineering tools and accepted methods of practice, and employ effective communication and teamwork to analyze engineering problems, to formulate and interpret alternatives, and to design and produce effective solutions;
- Demonstrate ethical behavior and professionalism by obtaining professional licensure as appropriate for their chosen career and by participating in professional societies;
- Assume increasing responsibilities, including managing their engineering solutions from conception through implementation and advancing toward leadership roles in both their career and their profession;
- Maintain and expand professional competencies and master emerging technologies by engaging in lifelong learning that includes graduate studies and professional education; and
- Incorporate global, societal, economic, and environmental impacts in their work consistent with the principles of sustainable development.

## Accreditation

The undergraduate program in Civil Engineering in the Department of Civil and Environmental Engineering is accredited by: Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202, Telephone: (410) 347-7700.

## Continued Studies

Students may plan early in their undergraduate careers for continuation of their engineering studies beyond the first degree. The large number of fields of graduate study that follow the curriculum offered by the Department of Civil and Environmental Engineering influence how each student plans his/her undergraduate program of study.

# Bachelor of Science in Civil Engineering (B.S.C.E.)

A Major in Civil Engineering leading to the Bachelor of Science in Civil Engineering (B.S.C.E.) degree consists of 128 credit hours.

## Degree Requirements

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Social science and humanities electives must be chosen both to satisfy University General Education requirements and to meet the objectives of a broad education consistent with the educational goals of the profession. To avoid taking "extra" humanities/social science electives, students must select their electives carefully after consulting with their faculty advisor. The science electives must be chosen from an approved list of physical, life, or earth sciences and must complement the student's overall educational plan.

- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*
- LBST 110X (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 22XX (3)
- Social Science Elective (3) *(select from an approved list of courses)*

*\*A grade of C or above is required for entry into the major.*

### Foundation Courses (33 credit hours)

- CHEM 1251 General Chemistry I (3)\*\*
- CHEM 1251L General Chemistry I Lab (1)\*\*
- MATH 1241 Calculus I (3)\*\*
- MATH 1242 Calculus II (3)\*\*
- MATH 2171 Differential Equations (3)\*\*
- MATH 2241 Calculus III (3)\*\*
- PHYS 2101 Physics for Science and Engineering I (3)\*\*
- PHYS 2101L Physics for Science and Engineering I Lab (1)\*\*
- PHYS 2102 Physics for Science and Engineering II (3)
- PHYS 2102L Physics for Science and Engineering II Lab (1)
- STAT 3128 Probability and Statistics for Engineers (3)
- Math/Science Elective (3) *(choose one course from the Biology, Earth Science, Mathematics, Chemistry or Physics area)*
- Science Elective (3) *(select from approved Biology and Earth Science courses)*

### Major Courses (50 credit hours)

- ENGR 1201 Introduction to Engineering Practices and Principles I (2)\*\*
- ENGR 1202 Introduction to Engineering Practices and Principles II (2)\*\*
- CEGR 2101 Civil Engineering Drawing (2)
- CEGR 2102 Engineering Economic Analysis (3)\*\*
- CEGR 2104 Surveying and Site Design (3)\*\*
- CEGR 2154 Design Project Lab (2) (0)\*\*
- CEGR 3111 Construction Engineering (3)\*\*
- CEGR 3122 Structural Analysis (3)\*\*
- CEGR 3141 Introduction to Environmental Engineering (3)\*\*
- CEGR 3143 Hydraulics and Hydrology (3)\*\*
- CEGR 3153 Transportation Lab (2) (W)
- CEGR 3155 Environmental Lab (2) (W)
- CEGR 3161 Transportation Engineering I (3)\*\*
- CEGR 3201 Systems and Design I (3)\*\*
- CEGR 3255 Structural Materials I Lab (2) (W)\*\*
- CEGR 3258 Geotechnical Lab (2) (W)
- CEGR 3278 Geotechnical Engineering (3)\*\*
- ENGR 3295 Multidisciplinary Professional Development (1)
- MEGR 2141 Engineering Mechanics I (3)\*\*
- MEGR 2144 Introduction to Solid Mechanics (3)\*\*

*\*\*A grade of C or above is required.*

### Restricted Elective Courses (24 credit hours)

#### **Civil Engineering Design Electives (6 hours)**

*Select a total of two courses from different options:*

#### Option 1

- CEGR 3221 Structural Steel Design I (3)
- CEGR 3225 Reinforced Concrete Design I (3)

#### Option 2

- CEGR 4185 Geometric Design of Highways (3)

#### Option 3

- CEGR 4278 Geotechnical Engineering II (3)

#### Option 4

- CEGR 4142 Water Treatment Engineering (3)
- CEGR 4242 Wastewater Treatment Design (3)
- CEGR 4147 Stormwater Management (3)
- CEGR 4264 Landfill Design and Site Remediation (3)

#### **Mechanical/Electrical Engineering Electives (6 hours)**

*Select two of the following:*

- ECGR 2161 Basic Electrical Engineering I (3)
- MEGR 3111 Thermodynamics I (3)
- MEGR 3121 Dynamics Systems I (3)

#### **Civil Engineering Elective (3 hours)**

*Select one of the following:*

CEGR 3221 Structural Steel Design I (3)  
CEGR 3225 Reinforced Concrete Design I (3)

**Civil Engineering Electives (6 hours)**

Select two of the following:  
CEGR 3xxx or CEGR 4xxx

**Technical Elective (3 hours)**

Select one technical elective from the areas of engineering, mathematics, science, business, and communications. An approved list of upper-division courses is available on the department website.

**Degree Total (128 credit hours)**

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



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**Bachelor of Science in Civil Engineering (B.S.C.E.) with Concentration in Energy Infrastructure**

The Bachelor of Science in Civil Engineering (B.S.C.E.) with a Concentration in Energy Infrastructure requires a minimum of 128 credit hours. The Concentration in Energy Infrastructure is intended for students interested in a specialized focus in energy as it relates to civil engineering, infrastructure, and environmental issues related to the development, generation, and distribution of energy.

Through careful course selection and scheduling, students can obtain the Concentration in Energy Infrastructure within the required 128-hour B.S.C.E. curriculum. Students completing the requirements described in this program receive a special designation on their transcripts showing they have completed the Concentration in Energy Infrastructure.

**Degree Requirements**

Students opting for this concentration must complete a minimum of 15 credit hours as follows:

**Concentration Courses (12 credit hours)**

MEGR 3111 Thermodynamics (3)  
ECGR 2161 Basic Electrical Engineering I (3)  
CEGR 4246 Energy and the Environment (3)  
CEGR 4090 Energy Infrastructure Systems (3)

**Concentration Elective Courses (3 credit hours)**

Select one of the following:  
CEGR 4090 Air Pollution (3)  
CEGR 4108 Finite Element Analysis and Applications (3)  
CEGR 4121 Prestressed Concrete Design (3)  
CEGR 4146 Advanced Engineering Hydraulics (3)  
CEGR 4162 Transportation Planning (3)  
CEGR 4182 Transportation Environmental Assessment (3)  
CEGR 4222 Structural Steel Design II (3)  
CEGR 4226 Reinforced Concrete Design II (3)  
CEGR 4247 Sustainability (3)  
CEGR 4278 Geotechnical Engineering II (3)

**Grade Requirements**

Students must earn at least a 2.5 GPA in the selected concentration courses.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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**Bachelor of Science in Civil Engineering (B.S.C.E.) with Concentration in Environmental / Water Resources Engineering**

The Bachelor of Science in Civil Engineering (B.S.C.E.) with a Concentration in Environmental/Water Resources Engineering intended for students interested in a focus in the engineering of Environmental and/or Water Resources Systems. Specialized courses prepare students to apply fundamental knowledge in mathematics, science, and engineering to design systems that provide safe, adequate and sustainable supplies of drinking water; prevent, mitigate or remediate soil, water, and air pollution; and minimize flood hazards.

Through careful course selection and scheduling, students can obtain the Concentration in Environmental/Water Resources Engineering within the required 128 hour B.S.C.E. curriculum. Students completing the requirements described in this program

receive a special designation on their transcripts showing they have completed the Concentration in Environmental/Water Resources Engineering.

### **Degree Requirements**

Students opting for this concentration must complete a minimum of 12 credit hours as follows:

#### **Concentration Courses (6 credit hours)**

CEGR 4144 Engineering Hydrology (3)  
CEGR 4242 Wastewater Treatment Design (3)

#### **Concentration Elective Courses (6 credit hours)**

*Select two of the following:*

CEGR 4127 Green Building and Integrated Design (3)  
CEGR 4142 Water Treatment Engineering (3)  
CEGR 4143 Solid Waste Management (3)  
CEGR 4145 Groundwater Hydrology (3)  
CEGR 4146 Advanced Engineering Hydraulics (3)  
CEGR 4147 Stormwater Management (3)  
CEGR 4148 Open Channel Hydraulics (3)  
CEGR 4235 Industrial Pollution Control (3)  
CEGR 4246 Energy and the Environment (3)  
CEGR 4247 Sustainability (3)  
CEGR 4264 Landfill Design and Site Remediation (3)

### **Grade Requirements**

Students must earn at least a 2.5 GPA in the selected concentration courses.

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## **Bachelor of Science in Civil Engineering (B.S.C.E.) with Concentration in Geotechnical Engineering**

The Bachelor of Science in Civil Engineering (B.S.C.E.) with a Concentration in Geotechnical Engineering is intended for students to gain a solid foundation in civil engineering through a selection of core required courses supplemented with elective courses that increase their depth in the concentration and meet their professional aspirations. Traditionally, geotechnical engineering focuses on the design and construction of foundations, slopes, retaining walls, and earthen structures. However, today the scope of this discipline has dramatically expanded to include geo-environmental engineering, design and construction of tunnels, landfills, waste management facilities, site and amended geo-material characterization, design of pavements and geopavements, as well as natural hazards assessment and mitigation.

Through careful course selection and scheduling, students can obtain the Concentration in Geotechnical Engineering within the required 128 credit hour

B.S.C.E. curriculum. Students completing the requirements described in this program receive a special designation on their transcripts showing they have completed the Concentration in Geotechnical Engineering.

### **Degree Requirements**

Students opting for this concentration must complete a minimum of 15 credit hours as follows:

#### **Concentration Courses (9 credit hours)**

CEGR 3225 Reinforced Concrete Design I (3)  
CEGR 4145 Groundwater Resources Engineering (3)  
CEGR 4278 Geotechnical Engineering II (3)

#### **Concentration Elective Courses (6 credit hours)**

*Select two of the following:*

CEGR 4264 Landfill Design and Site Remediation (3)  
CEGR 4270 Earth Pressure and Retaining Structures (3)  
CEGR 4271 Pavement Design (3)  
CEGR 4272 Design with Geosynthetics (3)  
CEGR 4273 Engineering Ground Improvement (3)  
CEGR 4276 Natural Hazards (3)

### **Grade Requirements**

Students must earn at least a 2.5 GPA in the selected concentration courses.

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## **Bachelor of Science in Civil Engineering (B.S.C.E.) with Concentration in Land Development Engineering**

The Bachelor of Science in Civil Engineering (B.S.C.E.) with a Concentration in Land Development Engineering is intended for students interested in a specialized focus in land development engineering as it relates to civil engineering and infrastructure issues.

Through careful course selection and scheduling, students can obtain the Concentration in Land Development Engineering within the required 128 credit hour B.S.C.E. curriculum. Students completing the requirements described in this program receive a special designation on their transcripts showing they have completed the Concentration in Land Development Engineering.

### **Degree Requirements**

Students opting for this concentration must complete a minimum of 12 credit hours as follows:

#### **Concentration Courses (6 credit hours)**

CEGR 3231 Land Development Engineering Fundamentals (3)

CEGR 4185 Geometric Design of Highways (3)

#### **Concentration Elective Courses (6 credit hours)**

*Select two of the following:*

CEGR 3233 Land Development Engineering Studio (3)

CEGR 3235 Land Development Engineering –

Advanced Site Analysis (3)

CEGR 4147 Stormwater Management (3)

CEGR 4247 Sustainability (3)

#### **Grade Requirements**

Students must earn at least a 2.5 GPA in the selected concentration courses.

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## **Bachelor of Science in Civil Engineering (B.S.C.E.) with Concentration in Structures**

The Bachelor of Science in Civil Engineering (B.S.C.E.) with a Concentration in Structures is intended for students interested in a focus in structures as it relates to civil engineering and infrastructure issues. Specialized courses prepare students to apply fundamental mechanics principles to analysis and employ iterative design processes. The latest building code requirements, as well as analysis and design software packages, are introduced.

Through careful course selection and scheduling, students can obtain the Concentration in Structures within the required 128 credit hour B.S.C.E. curriculum. Students completing the requirements described in this program receive a special designation on their transcripts showing they have completed the Concentration in Structures.

#### **Degree Requirements**

Students opting for this concentration must complete a minimum of 21 credit hours as follows:

#### **Concentration Courses (15 credit hours)**

CEGR 3221 Structural Steel Design I (3)

CEGR 3225 Reinforced Concrete Design I (3)

CEGR 4126 Codes, Loads, and Nodes (3)

CEGR 4278 Geotechnical Engineering II (3)

MEGR 3121 Dynamic Systems I (3)

#### **Concentration Elective Courses (6 credit hours)**

*Select two of the following:*

CEGR 4108 Finite Element Analysis and Applications (3)

CEGR 4123 Bridge Design (3)

CEGR 4222 Structural Steel Design II (3)\*

CEGR 4223 Timber Design (3)

CEGR 4224 Advanced Structural Analysis (3)\*

CEGR 4226 Reinforced Concrete Design II (3)\*

*\*At least one of the two elective courses must be CEGR 4222, CEGR 4224, or CEGR 4226.*

#### **Grade Requirements**

Students must earn at least a 2.5 GPA in the selected concentration courses.

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## **Bachelor of Science in Civil Engineering (B.S.C.E.) with Concentration in Transportation**

The Bachelor of Science in Civil Engineering (B.S.C.E.) with a Concentration in Transportation is intended for students interested in a focus in transportation as it relates to civil engineering and infrastructure issues. Specialized courses will prepare students to apply fundamental and scientific principles to plan, design, analyze, and manage transportation facilities. The latest manuals and design guides, as well as analysis and design software packages, are introduced.

Through careful course selection and scheduling, a student can obtain the Concentration in Transportation within the required 128 hour B.S.C.E. curriculum. Students completing the requirements described in this program receive a special designation on their transcripts showing they have completed the Concentration in Transportation.

#### **Degree Requirements**

Students opting for this concentration must complete a minimum of 12 credit hours as follows:

#### **Concentration Courses (9 credit hours)**

CEGR 4162 Transportation Planning (3)

CEGR 4185 Geometric Design of Highways (3)

CEGR 4262 Traffic Engineering (3)

#### **Concentration Elective Courses (3 credit hours)**

*Select one of the following:*

CEGR 4161 Advanced Traffic Engineering (3)

CEGR 4171 Urban Public Transportation (3)

CEGR 4181 Human Factors (3)

CEGR 4271 Pavement Design (3)

#### **Grade Requirements**

Students must earn at least a 2.5 GPA in the selected concentration courses.

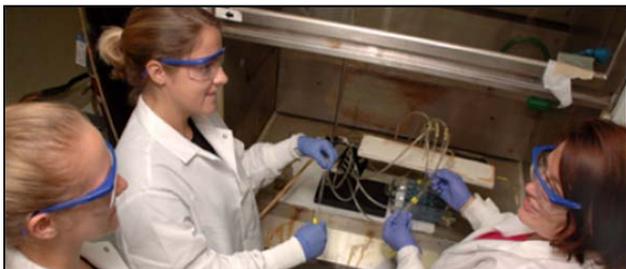
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## **Early Entry: Master of Science in Civil Engineering**

Qualified students may apply for the Early Entry Program into the M.S. in Civil Engineering during their Junior or Senior year. If accepted, students may take these optional courses for graduate credit and to begin

work on their master's degree while completing their undergraduate degree. Additionally, Early Entry students may apply up to 6 credits of approved graduate coursework as electives toward their undergraduate degree (double count).

- 1.) Students may be accepted into the Early Entry Program at any time after completion of at least 75 credit hours of undergraduate work applicable to an appropriate degree. Admission must be approved by the Department of Civil and Environmental Engineering. Full admission to the graduate program is conditional pending the awarding of the undergraduate degree.
- 2.) In order to be accepted into the program, a student must have at least a 3.2 overall GPA and a 3.2 GPA in the student's major. The successful applicant must have taken the appropriate standardized test and earned acceptable scores.
- 3.) While in the Early Entry Program, students must maintain a 3.0 overall GPA through completion of the baccalaureate degree in order to remain in the graduate program.
- 4.) Students accepted into the Early Entry Program are subject to the same policies that pertain to other matriculated graduate students. Early Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.



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# Department of Electrical and Computer Engineering

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<http://ece.uncc.edu>

The Department of Electrical and Computer Engineering provides instruction and research in areas of electrical and computer engineering such as electronics, electromagnetics, communication systems and networks, control systems, signal and image processing, computer hardware and software, power systems, digital systems, VLSI design, embedded systems, robotics, microelectronics, optoelectronics, nanotechnology, and biomedical engineering.

## Degree Programs

The Department offers a Bachelor of Science in Electrical Engineering (B.S.E.E.) degree and a Bachelor of Science in Computer Engineering (B.S.Cp.E.) degree. An eight-semester sequence of courses that is designed to develop the concepts and design and analysis techniques fundamental to the various areas of specializations forms the core of the academic plans of study. Emphasis is placed on the utilization of computers throughout the curricula. Our graduates have a wide range of job opportunities as power engineers, communication engineers, digital design engineers, test engineers, embedded system developers, network engineers, control engineers, project engineers, robotic system engineers, optoelectronic engineers, application engineers, analog engineers, medical product engineers, and process engineers.

Graduate studies in electronics, embedded systems, microelectronics, optoelectronics, computer engineering, VLSI design and testing, signal processing, data communications and networking, power electronics, power systems, and control systems are offered by the Department at the Master's and Ph.D. levels.

## Accreditation

Both the program in Electrical Engineering and the program in Computer Engineering are accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).



## B.S.CP.E./B.S.E.E. Program Educational Objectives

Our undergraduate programs prepare our graduates to:

- 1) Achieve successful careers in industry and/or success in post-baccalaureate studies as evidenced by:
  - Being valuable contributors to their employers
  - Career satisfaction
  - Professional visibility through publications, presentations, recognitions, and awards
  - Promotions in their chosen professions
  - Advanced degrees earned
  
- 2) Contribute to the betterment of society and the world as evidenced by:
  - Good citizenship by engaging in engineering practice that values integrity and ethical conduct as paramount
  - Useful inventions
  - Entrepreneurial activities
  - Active involvement in the education of others, locally or globally

## B.S.Cp.E./B.S.E.E. Program Learning Outcomes

Our undergraduate programs require students to learn these knowledge and skills by the time of graduation:

- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design and conduct experiments, as well as to analyze and interpret data
- An ability to design a system, component, or process to meet desired needs
- An ability to function on multi-disciplinary teams
- An ability to identify, formulate, and solve engineering problems
- An understanding of professional and ethical

responsibility

- An ability to communicate effectively
- An ability to understand the impact of engineering solutions in a global and societal context
- A recognition of the need for, and an ability to engage in life-long learning
- A knowledge of contemporary issues
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- The ability to articulate and address issues related to entrepreneurship



## Bachelor of Science in Electrical Engineering (B.S.E.E.)

A Major in Electrical Engineering leading to the B.S.E.E. degree consists of a total of 127 credit hours.

### Degree Requirements

#### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- ECON 2101 Principles of Economics – Macro (3)
- LBST 110x The Arts and Society (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 221x Ethical Issues and Cultural Critique (3)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

*Note: The liberal studies electives must be chosen to satisfy the University General Education Requirements and to meet the objectives of a broad education consistent with the educational goals of the profession.*

### Pre-Major Courses (18 credit hours)

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
ENGR 1201 Introduction to Engineering Practices and Principles I (2)  
ENGR 1202 Introduction to Engineering Practices and Principles II (2)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)

### Major Courses (54 credit hours)

ECGR 2103 Computer Utilization in C++ (3)  
ECGR 2111 Network Theory I (3)  
ECGR 2112 Network Theory II (3)  
ECGR 2155 Instrumentation and Networks Lab (1) (W)\*  
ECGR 2156 Logic and Networks Lab (1) (W)\*  
ECGR 2181 Logic Systems Design I (3)  
ECGR 2252 Electrical Engineering Design I (2) (O)  
ECGR 3111 Signals and Systems (3)  
ECGR 3112 System Analysis II (3)  
or ECGR 3181 Logic System Design II (3)  
ECGR 3121 Introduction to Electromagnetic Fields (3)  
ECGR 3122 Electromagnetic Waves (3)  
ECGR 3131 Fundamentals of Electronics and Semiconductors (3)  
ECGR 3132 Electronics (3)  
ECGR 3142 Electromagnetic Devices (3)  
or ECGR 3133 Solid State Microelectronics I (3)  
ECGR 3155 Systems and Electronics Lab (1) (W)\*  
ECGR 3156 Electromagnetic and Electronic Devices Lab (1) (W)\*  
ECGR 3157 Electrical Engineering Design II (2) (O)  
ECGR 3159 Professional Practice (2)  
ECGR 3253 Senior Design I (2) (O, W)  
ECGR 3254 Senior Design II (3) (O, W)  
ECGR 4123 Analog and Digital Communication (3)  
or ECGR 4124 Digital Signal Processing (3)

*\*The laboratory courses are designed to: (1) teach the basic techniques of instrumentation; (2) develop skills in communications; and (3) relate the analytical methods developed in the classroom to the performance of real physical systems.*

### Related Courses (19 credit hours)

ENGR 3295 Multidisciplinary Professional Development (1)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
MEGR 3111 Thermodynamics I (3)  
PHYS 2102 Physics for Science and Engineering II (3)  
PHYS 3141 Introduction to Modern Physics (3)  
STAT 3128 Probability and Statistics for Engineers (3)

### Restricted Elective Courses (18 credit hours)

#### **Electrical Engineering Elective Course (3 credit hours)**

Select one ECGR 4xxx course.

#### **Technical Elective Courses (12 credit hours)**

Technical electives should be at or above the 3000-level for ECGR courses not specified in the curriculum, of which 3 hours may be non-ECGR. These electives are chosen by students in consultation with their academic advisor. Students can use these electives to obtain significant depth within a particular concentration area of electrical or computer engineering in order to prepare for the careers of their interests, or for graduate work in electrical or computer engineering. The technical electives must contain at least 12 hours of coursework dealing with engineering science, analysis, synthesis, or design. The contents of the technical electives should be at levels higher than those required by the student's curriculum.

#### **Science/Mathematics Elective Course (3 credit hours)**

A science elective must be chosen from college-level chemistry, physical, or biological science courses. A math elective must be chosen from college-level, non-remedial mathematics or statistics courses. This elective course should complement the student's overall educational plan, and its content should be at a level above what is required by the student's academic plan of study.

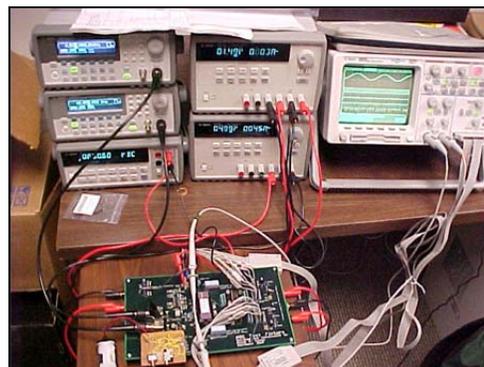
### Degree Total (127 credit hours)

### Grade Requirements

All non-elective Freshman year courses must be completed with C or above prior to enrolling in any Junior level courses.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



# Bachelor of Science in Electrical Engineering (B.S.E.E.) with Concentration in Power and Energy Systems

Students pursuing the Bachelor of Science in Electrical Engineering degree may choose to add a Concentration in Power and Energy Systems. The plan of study for the BSEE with a Concentration in Power and Energy Systems is similar to the BSEE plan of study with three primary exceptions:

- 1) All BSEE students are required to complete Technical Elective courses, usually during the Junior and Senior year. Students pursuing the BSEE with a Concentration in Power and Energy Systems are required to enroll in approved Power and Energy Technical Electives only. *See required courses below.*
- 2) During the Senior year, Power and Energy Systems Concentration students must complete an intensive, two-semester energy-related Senior design project.
- 3) Students in the concentration are strongly encouraged to take the Fundamentals of Engineering (FE) exam prior to graduation.

## Additional Admission Requirements

Students wishing to enroll in the Concentration in Power and Energy Systems must apply to enter the program after completing the second semester, Sophomore year courses (i.e., ECGR 2112, MATH 2241, etc.). An overall GPA of 3.0 is required for admission into the Concentration in Power and Energy Systems. In order to remain in the concentration, students must maintain a minimum (overall and program) GPA of 3.0.

## Degree Requirements

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

ECON 2101 Principles of Economics – Macro (3)  
LBST 110x The Arts and Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)  
LBST 221x Ethical Issues and Cultural Critique (3)  
UWRT 1101 Writing and Inquiry in Academic Contexts I (3)  
UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

*Note: The liberal studies electives must be chosen to satisfy the University General Education Requirements and to meet the objectives of a broad education consistent with the educational goals of the profession.*

### Pre-Major Courses (18 credit hours)

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
ENGR 1201 Introduction to Engineering Practices and Principles I (2)  
ENGR 1202 Introduction to Engineering Practices and Principles II (2)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)

### Major Courses (54 credit hours)

ECGR 2103 Computer Utilization in C++ (3)  
ECGR 2111 Network Theory I (3)  
ECGR 2112 Network Theory II (3)  
ECGR 2155 Instrumentation and Networks Lab (1) (W)\*  
ECGR 2156 Logic and Networks Lab (1) (W)\*  
ECGR 2181 Logic Systems Design I (3)  
ECGR 2252 Electrical Engineering Design I (2) (O)  
ECGR 3111 Signals and Systems (3)  
ECGR 3112 System Analysis II (3)  
ECGR 3121 Introduction to Electromagnetic Fields (3)  
ECGR 3122 Electromagnetic Waves (3)  
ECGR 3131 Fundamentals of Electronics and Semiconductors (3)  
ECGR 3132 Electronics (3)  
ECGR 3142 Electromagnetic Devices (3)  
ECGR 3155 Systems and Electronics Lab (1) (W)\*  
ECGR 3156 Electromagnetic and Electronic Devices Lab (1) (W)\*  
ECGR 3157 Electrical Engineering Design II (2) (O)  
ECGR 3159 Professional Practice (2)  
ECGR 3253 Senior Design I (2) (O, W)  
ECGR 3254 Senior Design II (3) (O, W)  
ECGR 4123 Analog and Digital Communication (3)  
or ECGR 4124 Digital Signal Processing (3)

*\*The laboratory courses are designed to: (1) teach the basic techniques of instrumentation; (2) develop skills in communications; and (3) relate the analytical methods developed in the classroom to the performance of real physical systems.*

### Related Courses (19 credit hours)

ENGR 3295 Multidisciplinary Professional Development (1)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
MEGR 3111 Thermodynamics I (3)  
PHYS 2102 Physics for Science and Engineering II (3)

PHYS 3141 Introduction to Modern Physics (3)  
STAT 3128 Probability and Statistics for Engineers (3)

#### **Concentration Courses (12 credit hours)**

ECGR 4111 Control Systems Theory I (3)  
ECGR 4141 Power Systems Analysis I (3)  
ECGR 4144 Power Electronics I (3)  
MATH 2164 Linear Algebra (3)

#### **Concentration Restricted Elective Courses (6 credit hours)**

Students must enroll in two additional three-credit Power and Energy Technical Elective Courses at the 4000 level or higher. A department-approved list of such courses is posted prior to the opening of registration each semester.

Students who receive three credits for ECGR 3695 (Electrical Engineering Cooperative Education Seminar) may be exempted from one of the following Power and Energy Technical Elective requirements:

- 1) ECGR 4144 Power Electronics I (3)
- 2) One of the two additional 4000-level Power and Energy Technical Electives beyond ECGR 4111 and ECGR 4141

#### **Degree Total (127 credit hours)**

#### **Grade Requirements**

All non-elective Freshman year courses must be completed with C or above prior to enrolling in any Junior level courses.

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Science in Computer Engineering (B.S.Cp.E.)**

A Major in Computer Engineering leading to the B.S.Cp.E. degree consists of 125 credit hours.

#### **Degree Requirements**

##### **General Education Courses (24 credit hours)**

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

ECON 2101 Principles of Economics – Macro (3)  
LBST 110x The Arts and Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)

LBST 221x Ethical Issues and Cultural Critique (3)  
UWRT 1101 Writing and Inquiry in Academic Contexts I (3)  
UWRT 1102 Writing and Inquiry in Academic Contexts II (3)  
XXXX 2XXX Writing Intensive Course (3)

#### **Pre-Major Courses (18 credit hours)**

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
ENGR 1201 Introduction to Engineering Practices and Principles I (2)  
ENGR 1202 Introduction to Engineering Practices and Principles II (2)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)

#### **Major Courses (54 credit hours)**

ECGR 2103 Computer Utilization in C++ (3)  
ECGR 2104 Computer Engineering Programming II (3)  
ECGR 2111 Network Theory I (3)  
ECGR 2112 Network Theory II (3)  
ECGR 2155 Instrumentation and Networks Lab (1) (W)  
ECGR 2156 Logic and Networks Lab (1) (W)\*  
ECGR 2181 Logic Systems Design I (3)  
ECGR 2255 Digital Design Lab (2)  
ECGR 3111 Signals and Systems (3)  
ECGR 3123 Data Communications and Networking (3)  
ECGR 3131 Fundamentals of Electronics and Semiconductors (3)  
ECGR 3132 Electronics (3)  
ECGR 3155 Systems and Electronics Lab (1) (W)  
ECGR 3159 Professional Practice (2)  
ECGR 3181 Logic System Design II (3)  
ECGR 3183 Computer Organization (3)  
ECGR 3253 Senior Design I (2) (O, W)  
ECGR 3254 Senior Design II (3) (O, W)  
ECGR 4101 Embedded Systems (3)  
ECGR 4124 Digital Signal Processing (3)  
ECGR 4146 Introduction to VHDL (3)

#### **Related Courses (14 credit hours)**

ENGR 3295 Multidisciplinary Professional Development (1)  
MATH 1165 Introduction to Discrete Structures (3)  
MATH 2171 Differential Equations (3)  
PHYS 2102 Physics for Science and Engineering II (3)  
PHYS 2102L Physics for Science and Engineering I Lab (1)  
STAT 2122 Introduction to Probability and Statistics (3)

### **Elective Courses (15 credit hours)**

#### ***Science Restricted or Math Restricted Elective Course (3 credit hours)***

The science restricted elective must be chosen from college-level chemistry, physical or biological science courses. The math restricted elective must be chosen from college-level, non-remedial mathematics or statistics courses. This elective course should complement the student's overall educational plan, and its content should be at a level above what is required by the student's Academic Plan of Study.

#### ***Advanced Problem Solving Elective Course (3 credit hours)***

The advanced problem solving elective must be chosen from one of the following courses and should complement the student's overall educational plan. Select from one of the following:

MATH 2164 Matrices and Linear Algebra (3)  
MATH 2241 Calculus III (3)  
MATH 3116 Graph Theory (3)  
MATH 3166 Combinatorics (3)  
OPRS 3111 Operations Research: Deterministic Models (3)  
OPRS 3113 Operations Research: Probabilistic Models (3)  
PHYS 3141 Introduction to Modern Physics (3)

#### ***Restricted Elective Course (3 credit hours)***

The restricted elective course must be chosen from: engineering, computing and informatics, computer science, math, statistics, physics, chemistry, biology, or software and information systems. This elective course should complement the student's overall educational plan, and its content should be at a level above what is required by the student's Academic Plan of Study.

#### ***Depth Elective Courses (6 credit hours)***

For the depth elective requirement, choose two courses from one of the following three areas:

##### ***1) Communication and Signal Processing***

ECGR 3090 *Special Topics in Electrical Engineering*  
(3) (approved case-by-case)  
ECGR 3112 *System Analysis II* (3)  
ECGR 4090 *Special Topics in Electrical Engineering*  
(3) (approved case-by-case)  
ECGR 4103 *Applied Computer Graphics* (3)  
ECGR 4123 *Analog and Digital Communication* (3)  
ECGR 4125 *Foundation of Optical Engineering* (3)  
ECGR 4139 *Digital Communication Systems* (3)  
ECGR 4187 *Data Communications and Networking II*  
(3)  
ECGR 4422 *Random Processes and Optimum Filtering* (3)

##### ***2) Hardware Systems***

ECGR 3090 *Special Topics in Electrical Engineering*  
(3) (approved case-by-case)  
ECGR 3133 *Solid State Microelectronics I* (3)  
ECGR 3182 *Digital Electronics* (3)  
ECGR 4090 *Special Topics in Electrical Engineering*  
(3) (approved case-by-case)  
ECGR 4131 *Linear Integrated Electronics* (3)  
ECGR 4132 *Analog Integrated Circuits Design* (3)  
ECGR 4134 *Solid State & Semiconductor Microelectronics II* (3)  
ECGR 4137 *Device Electronics for Integrated Circuits*  
(3)  
ECGR 4138 *Electronic Thin Film Materials Devices* (3)  
ECGR 4140 *Introduction to VLSI Processing* (3)  
ECGR 4142 *Power System Analysis II* (3)  
ECGR 4182 *Digital System Testing* (3)  
ECGR 4188 *Advanced VLSI Systems Design* (3)  
ECGR 4433 *VLSI Systems Design* (3)

##### ***3) Computer Architecture, Software, and Systems***

ECGR 3090 *Special Topics in Electrical Engineering*  
(3) (approved case-by-case)  
ECGR 4090 *Special Topics in Electrical Engineering*  
(3) (approved case-by-case)  
ECGR 4102 *Engineering Simulation* (3)  
ECGR 4103 *Applied Computer Graphics* (3)  
ECGR 4111 *Control Systems Theory I* (3)  
ECGR 4112 *Control Systems Theory II* (3)  
ECGR 4161 *Introduction to Robotics* (3)  
ECGR 4181 *Computer Architecture* (3)  
ITCS 2214 *Data Structures* (3)  
ITCS 3166 *Introduction to Computer Networks* (3)

### **Degree Total (125 credit hours)**

#### **Grade Requirements**

All non-elective Freshman year courses must be completed with C or above prior to enrolling in any Junior level courses.

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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### **Minor in Electrical Engineering**

The Department of Electrical and Computer Engineering offers a Minor in Electrical Engineering for non-majors.

#### **Prerequisites**

The Minor in Electrical Engineering assumes that students have a background in mathematics and physics equivalent to that covered in the first two years of the ECGR curriculum. In mathematics, this would cover calculus (MATH 1241, MATH 1242) and

differential equations (MATH 1271). Knowledge of linear algebra is also recommended. Physics requirements are PHYS 2101, PHYS 2101L, and PHYS 2102. The totality of such courses is 16 credit hours.

### Minor Requirements

A Minor in Electrical Engineering consists of 18 additional credit hours and requires the following:

#### Required Courses (9 hours)

ECGR 2111 Network Theory I (3)  
ECGR 2112 Network Theory II (3)  
ECGR 3131 Fundamentals of Electronics and Semiconductors (3)

#### Required Elective (3 hours)

*At least one of the following*

ECGR 3111 Signals and Systems (3)  
ECGR 3121 Introduction to Electromagnetic Fields (3)

If both ECGR 3111 and ECGR 3121 are taken, one of these courses may count as 3 credits toward the free elective course requirements.

#### Free Elective Courses (6 hours)

Students should choose 6 credits from 3000- and/or 4000-level ECGR courses. All prerequisites for such elective courses must be satisfied.

### Grade Requirements

Students must achieve a minimum GPA of 2.0 in all of these courses, and this minor is not available for a student who has a major in either Electrical Engineering or Computer Engineering.

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## Minor in Computer Engineering

The Department of Electrical and Computer Engineering offers a Minor in Computer Engineering for non-majors.

### Prerequisites

The minor assumes that students have a background in mathematics that is covered in the first year of the ECGR curriculum. In mathematics, this would cover Calculus (MATH 1120, MATH 1121, or MATH 1241). The totality of such courses is 3 or more credit hours.

### Minor Requirements

The Minor in Computer Engineering consists of 15 additional credit hours and requires the following:

#### Required Courses (12 hours)

ECGR 2103 Computer Utilization in C++ (3)  
ECGR 2181 Logic System Design I (3)  
ECGR 3181 Logic System Design II (3)  
ECGR 3183 Computer Organization (3)

### Required Elective (3 hours)

*At least one of the following*

ECGR 4101 Embedded Systems (3)  
ECGR 4146 Introduction to VHDL (3)  
ECGR 4181 Computer Architecture (3)  
ECGR 4182 Digital System Testing (3)  
ECGR 4433 VLSI Systems Design (3)

### Grade Requirements

Students must achieve a minimum GPA of 2.0 in all of these courses, and this minor is not available for a student who has a major in either Electrical Engineering or Computer Engineering.

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## Early Entry: Master of Science in Electrical Engineering

- 1) A student may be accepted into the Early Entry Program at any time after completion of 75 credit hours of undergraduate work applicable to an appropriate degree. Admission must be approved by the Department of Electrical and Computer Engineering. The admission is conditional pending the awarding of the undergraduate degree.
- 2) In order to be accepted into the Electrical Engineering Early Entry Program, an undergraduate student must have at least a 3.2 overall GPA and a 3.2 GPA in the major. The successful applicant must have taken the appropriate graduate standardized test and achieved acceptable scores.
- 3) If an Early Entry student is unable to maintain a 3.0 overall GPA at the end of his/her baccalaureate degree, he/she will be dismissed from the graduate program.
- 4) Up to six hours earned at the graduate level may be substituted for required undergraduate hours. (Up to six hours of graduate work may be "double counted" toward both baccalaureate and graduate degrees.)
- 5) Students accepted into the Early Entry Program will be subject to the same policies that pertain to other matriculated graduate students. Early Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.

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# Department of Engineering Technology and Construction Management

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<http://et.uncc.edu>

Engineering and technical education have undergone considerable change in the last 40 years. The complexities of space exploration, power generation, communications systems, environmental control, information processing, transportation systems, fire protection, construction management, and manufacturing have demanded a great increase in the involvement of professional engineers in theoretical and analytical work. This has resulted in a much greater emphasis upon research and development, science, and mathematics in professional engineering curricula. At the same time, after the more complex devices and systems have been engineered, their design, development, and operation require the sophisticated knowledge and skills of what might be called the "applied engineering sciences." Programs dedicated to filling this need exist all over the United States. The aim and content of these programs are distinctly different from professional engineering curricula.



To provide the appropriate distinction from both theoretical-professional engineers and from engineering technicians who are graduated from two-year community and technical colleges, the designation "engineering technologist" is employed to describe the graduates of four-year applied engineering or "engineering technology" curricula. The Department of Engineering Technology and Construction Management is committed to producing competent

graduates that satisfy the needs of employers in North Carolina and throughout the United States.

## Degree Programs

The Department of Engineering Technology and Construction Management offers curricula leading to the Bachelor of Science in **Construction Management (BSCM)** and the Bachelor of Science in Engineering Technology (BSET) degrees. In addition to the BSCM, four disciplines of study are available in Engineering Technology: **Civil Engineering Technology, Electrical Engineering Technology, Fire Safety Engineering Technology (with concentrations in Fire Safety or Fire Protection), and Mechanical Engineering Technology.**

Students may enroll in our programs in several ways: 1) as freshmen; 2) as transfers without an approved Associate of Applied Science (AAS) degree in engineering technology, construction management, or fire protection; or 3) as upper division 2+2 transfers after completing a two-year AAS degree in a relevant engineering technology, construction management, or fire protection curriculum at a community or technical college. *Incoming students with an AAS degree generally receive Junior class standing, with 64 credit hours applied toward the BSET or BSCM degree.*

Construction Management and Engineering Technology students learn through applied technical courses and hands-on laboratories where they interact with experienced professors with many years of real-world engineering, design, project management, and product development experience. Graduation with a BS degree in Construction Management (BSCM) or Engineering Technology (BSET) opens the door to many exciting and challenging professional careers. Graduates choose from a variety of exciting career options where they enjoy productive professional careers with exceptional employment rates and excellent salaries.

## Accreditation

The Civil, Electrical, and Mechanical Engineering Technology and Construction Management programs are accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, [www.abet.org](http://www.abet.org).

## Employment Opportunities for Graduates

Graduates of our programs can be found in every sector of the global economy. Examples of employment opportunities and examples of recent job titles are provided below for each program.

## Civil Engineering Technology

Civil Engineering Technology (CIET) graduates find employment in a wide range of positions in construction, surveying, engineering and architectural firms; local, state and national government; environmental and public health agencies; state departments of transportation and highways; and private business and industry. Specific job titles of recent graduates include transportation technician, highway technician, engineer-in-training, materials supervisor, surveying crew chief, civil engineering detailer/designer, office engineer, construction estimator or planner, engineering assistant, project engineer and assistant project manager.

## Construction Management

Construction Management (CM) graduates plan, direct, and coordinate a wide variety of construction projects, including the building of all types of residential, commercial, and industrial structures, roads, bridges, wastewater treatment plants, and schools and hospitals. Construction managers may oversee an entire project or just part of a project. They often work with or for owners, engineers, architects, and others who are involved in the construction process. Construction managers evaluate and help determine appropriate construction delivery systems and the most cost-effective plan and schedule for completing the project.

## Electrical Engineering Technology

Electrical Engineering Technology (ELET) graduates find employment in many sectors of the economy. Almost any aspect of communications, electronic instrumentation, computer applications, computer networking, electric power generation and distribution, or consumer electronics has a need for graduates with understanding of the applications of electrical technology. A few examples are systems administrator for networked computer systems, systems design for a telecommunications company, avionics control systems for aircraft programs, applications design for HVAC and building power-control systems.

## Fire Safety Engineering Technology

Fire Safety Engineering Technology (FSET) graduates find employment in numerous areas associated with fire protection to include prevention, suppression, building design and fire investigation and re-creation, emergency preparedness, safety analysis, and mitigation. The FSET program stresses the importance of personal communication skills and the ability to function in a team environment. Some typical job titles of recent graduates include firefighter, fire investigator, fire prevention officer, fire inspector, fire captain, and safety coordinator.

## Mechanical Engineering Technology

Mechanical Engineering Technology (MET) graduates use the principles of energy, materials, and mechanics to design, build, test and maintain a wide variety of machines, processes, and systems with employment in the automotive, aerospace, energy, and other high-tech industries. METs work in areas such as computer-aided design, plant production or maintenance, research and development, or as laboratory technicians, production assistants, manufacturing or quality control engineers, product and materials testing technologists, or applications engineers.

## Engineering Technology Program Educational Objectives and Outcomes

### Program Educational Objectives

These are statements that describe the expected accomplishments of graduates during the first few years *after* graduation.

The Department of Engineering Technology and Construction Management at UNC Charlotte is committed to providing the environment and expertise to ensure that its graduates make substantive contributions in their professional endeavors after graduation, both in the areas of technical proficiency and community involvement.

Accordingly, graduates of the BSET Civil, Electrical, Fire Safety, and Mechanical Engineering Technology programs and BSCM Construction Management program contribute to society as productive technologists and engaged citizens by:

- 1.) Applying general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems.
- 2.) Articulating technical material in a professional manner to potentially diverse audiences and in a variety of circumstances, employing effective oral and written strategies and techniques.
- 3.) Assuming leadership roles and contributing within team environments while modeling ethical, respectful, and professional behavior at all times.
- 4.) Recognizing and appreciating the environmental, societal, and fiscal impact of the technical professions in a local, national, and global context.
- 5.) Demonstrating an individual desire and commitment to pursue continuous self-improvement and lifelong learning.

## Program Outcomes

These are statements that describe what students are expected to know and able to do by the time of graduation. Graduates with a BSCM or BSET degree from UNC Charlotte will be able to:

- 1.) Utilize appropriate tools to acquire data and analyze problems. (ETAC 3a, 3b, 3c – see below)
- 2.) Demonstrate effective skills in the development and presentation of team projects. (ETAC 3e, 3g, 3k)
- 3.) Exhibit knowledge and skills consistent with the expectations of a practicing engineering technologist. (ETAC 3h, 3j, 3k)
- 4.) Generate creative and realistic solutions to defined problems and projects. (ETAC 3a, 3d, 3f)
- 5.) Recognize the value of diversity, and identify ethical and societal issues in business and technical tasks. (ETAC 3i, 3j)
- 6.) Solve problems and design components, systems, or processes appropriate to the discipline. (ETAC 3a, 3d, & Program Criteria) *Each program defines the specific details of this outcome.*

The Construction Management and Engineering Technology programs identify, measure, and improve student competencies through assessment and continuous improvement of program outcomes, which are mapped to the ETAC of ABET Criterion 3 (a through k) criteria listed below:

TAC of ABET Criterion 3 a through k Skills	
Each program must demonstrate that graduates have:	
<b>a.</b>	An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly defined engineering technology activities;
<b>b.</b>	An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
<b>c.</b>	An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
<b>d.</b>	An ability to design systems, components, or processes for broadly defined engineering technology problems appropriate to program educational objectives;
<b>e.</b>	An ability to function effectively as a member or leader on a technical team;
<b>f.</b>	An ability to identify, analyze, and solve broadly defined engineering technology problems;
<b>g.</b>	An ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature;
<b>h.</b>	An understanding of the need for an ability to engage in self-directed continuing professional development;
<b>i.</b>	An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
<b>j.</b>	A knowledge of the impact of engineering technology solutions in a societal and global context; and
<b>k.</b>	A commitment to quality, timeliness, and continuous improvement.

## Additional Programs and Opportunities

### Distance Education

In addition to the on-campus programs, the upper division of the BSET programs in **Electrical Engineering Technology** and **Fire Safety Engineering Technology** (excluding the Fire Protection concentration) are offered over the Internet to part-time students. This allows students who already hold an approved AAS degree to complete their Junior and Senior years of the BSET program at a distance. Students are required to come to the campus only for ELET laboratories. The ELET laboratories are currently offered on a schedule of Saturdays during the summer school sessions. Estimated completion time for the distance delivery of the Junior and Senior years is approximately four years, including summers, since students generally take two courses per semester.

### Bachelor of Science in Construction Management (BSCM)

The Bachelor of Science in Construction Management (BSCM) degree program consists of 128 credit hours. It is designed to provide the construction education necessary for entry into the construction industry (residential, commercial, industrial sectors, infrastructure, and heavy horizontal construction) and related careers, including, but not limited to, real estate and land development, infrastructure development, code enforcement, and insurance, among others.



The program is further enhanced by a business / management core which includes courses in statistics, computer applications, economics, accounting, engineering economics, business management, business law, finance, and construction law.

The Construction Management program shares a common lower division (Freshman and Sophomore year) curriculum with the Civil Engineering Technology (CIET) Program, providing students with a two-year window for exploration to determine which degree, the B.S. in Civil Engineering Technology or B.S. in Construction Management, is their desired academic objective.

## Additional Admission Requirements

Applicants for this program may enter directly after completing high school, as a lower-division transfer without a completed Associate in Applied Science (AAS), or may enter with 64 credit hours for an AAS degree in Architectural, Civil, Construction, or other similarly named Engineering Technology degree earned at a technical or community college and approved by the department.

### Freshman Admission

Applicants entering as freshmen must meet the University admission requirements.

### Transfer Admission

Transfer applicants not having the Associate in Applied Science (AAS) degree or its equivalent must meet University admission requirements.

Transfer applicants with AAS degrees must:

- 1) Hold an AAS degree in a field from among: Architectural, Building Construction, Civil Engineering Technology, Construction Management, Design and Drafting, Surveying Technology, or similar title with curriculum acceptable to the department (It should be noted by potential transfer students that students with an AAS in Civil Engineering Technology are typically best positioned for entry to the program with fewest entrance deficiencies.);
- 2) An overall GPA of at least 2.2 (based on the 4.0 system) on all courses taken at the technical institute or community college; and
- 3) Have completed satisfactorily the prerequisite background courses for the program (a limited number of such background courses may be made up by taking them at UNC Charlotte).

Acceptance of the AAS degree indicates the acceptance of up to 64 hours toward the Bachelor of Science in Construction Management (BSCM) degree program only. These hours may not be valid toward other degree programs at UNC Charlotte.

There is considerable variance in the contents of technical programs throughout the United States. Should this result in entrance deficiencies, the student can usually remove these deficiencies at a community or technical college prior to admission to UNC Charlotte, or during the first year at UNC Charlotte.

### Residence Requirements

A student must earn the last 30 credit hours of credit toward the degree and the last 12 credit hours of work in the major at UNC Charlotte to satisfy residence requirements.

## Academic Requirements and Discontinuance Conditions in Construction Management

In addition to University and College of Engineering conditions, a student who is admitted to the CM program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance and enrollment in Senior level coursework is prohibited until all deficiencies are removed.

### Prerequisite Courses

Students must have satisfactorily completed the following subjects in their two-year associate degree program:

- English Composition and/or Technical Writing (6 credit hours)
- Algebra and Trigonometry (3 credit hours)
- Differential and Integral Calculus (6 credit hours)
- Analytical, Physical, or Environmental Science with Lab (8 credit hours)
- Macro Economics (3 credit hours)
- Construction Methods
- Construction Materials
- Statics
- Strength of Materials
- Construction Surveying
- Computer-Aided Drafting
- Environmental Technology, Hydraulics, or Hydrology
- Engineering Technology Computing Applications

### Course Requirements

Course requirements correspond to the mode of admission for each student as outlined hereafter.

- 1) *Entering Freshmen:* students admitted as entering freshmen will complete the respective four-year curriculum as described below.
- 2) *Transfer students holding an AAS degree:* transfer students with an acceptable associate degree as defined previously under admission requirements begin the program at the Junior year with up to 64 credit hours awarded. Prerequisites for students holding an acceptable associate degree from a community or technical college are listed below.
- 3) *Transfer students not holding an associate degree:* transfer students not holding an AAS degree must complete the remaining coursework for the four-year curriculum after transfer credit application.

## Degree Requirements (4-Year Program)

The Bachelor of Science in Construction Management (BSCM) 4-year degree program consists of 128 credit hours.

### General Education Courses (18 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

LBST 110X The Arts & Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)  
LBST 221X Ethical and Cultural Critique (3)  
UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*  
UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*

### Mathematics and Science Foundation Courses (23 credit hours)

CHEM 1251 General Chemistry I (3)  
or GEOL 1200 Physical Geography (3)  
ETGR 2272 Engineering Analysis II (3)  
MATH 1103 Precalculus Mathematics for Science and Engineering (3)\*  
MATH 1121 Calculus for Engineering Technology (3)\*  
or ETGR 2171 Engineering Analysis I (3)\*  
PHYS 1101 Introductory Physics I (3)\*  
PHYS 1101L Introductory Physics I Lab (1)\*  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)  
STAT 1220 Elements of Statistics I (BUSN) (3)

### Business and Management Foundation Courses (12 credit hours)

ACCT 2121 Principles of Accounting I (3)\*  
ACCT 2122 Principles of Accounting II (3)\*  
BLAW 3150 Business Law I (3)\*  
or CMET 4127 Construction Law and Regulatory Issues (3)  
ECON 2101 Principles of Economics–Macro (3)\*

### Major Courses (69 credit hours)

CMET 1680 Professional Development I: Construction Safety (1)\*  
CMET 2680 Professional Development II: Sustainable Engineering and Construction (1)  
CMET 3123 Cost Estimating (3)  
CMET 3224 Construction Project Administration (3)  
CMET 3680 Professional Development III: Professional Ethics (1)  
CMET 4126 Project Scheduling and Control (3)  
CMET 4129L Construction Planning Lab (1) (W)  
CMET 4130 Infrastructure Systems (3)  
CMET 4272 Capstone Project (3) (O, W)  
CMET 4680 Professional Development IV (1)  
ETCE 1104 Civil/Construction CAD Applications (2)\*  
ETCE 1211 Construction Surveying I (3)\*  
ETCE 1211L Construction Surveying I Lab (1)\*  
ETCE 1222 Construction Materials (3)\*

ETCE 1222L Construction Materials Lab (1)\*  
ETCE 2105 Plan Reading and Quantity Takeoff (3)  
ETCE 2221 Construction Means and Methods (3)  
ETCE 2410 Introduction to Environmental Engineering Technology (3)  
ETCE 3131 Soil Mechanics and Earthwork (3)  
ETCE 3131L Soil Testing Lab (1) (W)  
ETCE 3163 Structural Analysis and Design I (3)  
ETCE 3163L Structures and Materials Lab (1) (W)  
ETCE 3271 Building Systems (3)  
ETCE 3271L Building Systems Lab (1) (W)  
ETCE 4350 Construction Geotechnics and Foundations (3)  
ETGR 1100L Engineering Technology Computer Applications Lab (1)\*  
ETGR 1103 Technical Drawing I (2)\*  
ETGR 1201 Introduction to Engineering Technology (2)\*  
ETGR 2101 Applied Mechanics I (3)\*  
ETGR 2102 Applied Mechanics II (3)  
ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
ETGR 3222 Engineering Economics (3)\*

*\*Course must be completed with a grade of C or above.*

### Restricted Elective Courses (6 credit hours)

Select two 3-credit hour courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

**Degree Total = 128 credit hours**

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Degree Requirements (2+2-Year Program)

The Bachelor of Science in Construction Management (BSCM) 2+2-year degree program consists of 64 credit hours.

### AAS Degree (64 credit hours)

#### General Education Courses (12 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

LBST 110X The Arts & Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)

LBST 221X Ethical and Cultural Critique (3)

### **Business and Management Foundation Courses (9 credit hours)**

ACCT 2121 Principles of Accounting I (3)\*

ACCT 2122 Principles of Accounting II (3)\*

BLAW 3150 Business Law I (3)\*

or CMET 4127 Construction Law and Regulatory Issues (3)

### **Major Courses (37 credit hours)**

CMET 3123 Cost Estimating (3)

CMET 3224 Construction Project Administration (3)

CMET 3680 Professional Development III: Professional Ethics (1)

CMET 4126 Project Scheduling and Control (3)

CMET 4129L Construction Planning Laboratory (1) (W)

CMET 4130 Infrastructure Systems (3)

CMET 4272 Capstone Project (3) (W,O)

CMET 4680 Professional Development IV (1)

ETCE 3131 Soil Mechanics and Earthwork (3)

ETCE 3131L Soil Testing Laboratory (1) (W)

ETCE 3163 Structural Analysis and Design I (3)

ETCE 3163L Structures and Materials Lab (1) (W)

ETCE 3271 Building Systems (3)

ETCE 3271L Building Systems Lab (1) (W)

ETCE 4350 Construction Geotechnics and Foundations (3)

ETGR 3071 Engineering Technology Professional Seminar (1) (W)

ETGR 3222 Engineering Economics (3)\*

*\*Course must be completed with a grade of C or above.*

### **Restricted Elective Courses (6 credit hours)**

Select two 3-credit hour elective courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

**Degree Total = 128 credit hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### **Concentration in Applied Energy and Sustainable Systems**

A Concentration in Applied Energy and Sustainable Systems is available to B.S. in Construction Management students. Students may focus their Restricted Elective Courses by choosing 14 credit

hours in energy- and sustainability-related courses from the following:

CMET 2680 Professional Development II: Sustainable Engineering and Construction (1)

ETCE 2410 Introduction to Environmental Engineering Technology (3)

ETCE 3271 Building Systems (3)

or ETCE 3242 Hydraulics and Hydrology (3)

ETCE 3271L Building Systems Laboratory (1) (W)

or ETCE 3242L Hydraulics Lab (1) (W)

And any two (2) of the following courses:

ENER 4140 Energy Management (3)

ENER 4250 Analysis of Renewable Energy Systems (3)

ENER 4275 Air Conditioning Systems (3)

ETCE 3271 Building Systems (3)

or ETCE 3242 Hydraulics and Hydrology (3)

SEGR 4961 Introduction to Energy Systems (3)

SEGR 4962 Energy Markets (3)

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **BSET in Civil Engineering Technology**

Civil Engineering Technology includes computer-aided drafting (CAD); structures (analysis, design of structural steel and reinforced concrete); construction (cost estimating, construction planning and administration); transportation (surveying, highway design and construction); water resources (hydraulics, hydrology, and environmental); and geotechnical (soil mechanics, foundations and earthwork).

The Civil Engineering Technology program shares a common curriculum with the Construction Management program for the first two years. Students may move between the common programs until the Junior year when the curricula diverge. At the end of the Sophomore year, students must select either the analysis and design-oriented Civil Engineering Technology BSET degree or the management-oriented BSCM program.

### **Additional Admission Requirements**

Students for this degree may enter degree programs in the Department of Engineering Technology and Construction Management as freshmen or as transfer students.

### **Freshman Admission**

Applicants entering as Freshmen must meet the general University admission requirements.

## Transfer Admission

Transfer admission into the department occurs in one of two situations:

- 1) Transfer applicants not having the Associate in Applied Science (AAS) degree or its equivalent must meet general University admission requirements.
- 2) Transfer applicants with an Associate of Applied Science (AAS) degree must:
  - a) Hold an Associate of Applied Science (AAS) degree in a field appropriate to the option they plan to enter. Acceptable AAS degrees include Architectural, Automation, Building Construction, Civil, Construction, Computer, Controls, Design and Drafting, Electrical, Electronics, Environmental, Fire Protection, Fire Science, Industrial, Instrumentation, Manufacturing, Mechanical, Optics, Robotics, Surveying or similar title with curriculum acceptable to the department. A minimum GPA of 2.2 (out of 4.0) in the AAS degree is required.
  - b) Have completed satisfactorily the prerequisite background courses for the option they plan to enter (missing background courses may be taken at UNC Charlotte).

Acceptance of a completed AAS degree indicates the acceptance of up to 64 credit hours toward the Bachelor of Science in Engineering Technology degree program only. These hours may not be valid toward other degree programs at UNC Charlotte.

## Residence Requirements

A student must earn the last 30 credit hours toward the BSET degree and the last 12 credit hours in the major at UNC Charlotte to satisfy residence requirements.

## Experiential Learning Requirements

All students must complete an experiential learning course. Experiential courses are practice-oriented courses such as cooperative education, internships, senior design projects, or undergraduate research.

Internships, or *49ershops*, involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours and 5 weeks for one semester is required to complete the program. Fall and Spring 49ershops are part-time. Summer 49ershops may be full- or part-time. Full-time students who are in good University standing, have completed 30 credit hours, and have a 2.0 minimum cumulative GPA are eligible. Internships do not offer academic

credit, but are noted on the student's transcript; students pay a course registration fee. Approval for enrollment must be arranged before the student begins a work experience. Students may begin this program during their Sophomore year; transfer students must complete 12 credit hours at UNC Charlotte before making application for the program. For more information, contact the College of Engineering Office of Student Development and Success or the University Career Center.

## Remediation of Academic Entrance Requirements for AAS Transfer Students

In addition to University and College of Engineering requirements, an AAS transfer student who is admitted to any BSET program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance and enrollment in senior-level coursework is prohibited until all deficiencies are removed.

## Course Requirements

Course requirements correspond to the mode of admission for each student as outlined hereafter.

- 1) Entering Freshmen: Students admitted as Freshmen complete the appropriate four year curriculum for the program into which they were admitted.
- 2) Transfer students not holding an appropriate AAS degree: Transfer students not holding an appropriate AAS degree must complete the remaining coursework outlined for the respective four year curriculum that they were admitted into after evaluation and application of any transfer credit.
- 3) Transfer students holding an appropriate AAS degree: Transfer students with an appropriate Associate of Applied Science (AAS) degree as defined previously under Admission Requirements may begin the program in the Junior year with up to 64 transfer credit hours awarded. Prerequisites for students holding an AAS degree from a community or technical college are listed below.

## Prerequisite Courses

Students transferring with an AAS degree must have satisfactorily completed the following subjects in their two-year program:

- English Composition, Technical Writing and/or Public Speaking (6 credit hours)
- Algebra and Trigonometry (3-6)
- Differential and Integral Calculus (6)
- General Physics (with lab) (4)

- Additional Physics or Chemistry (with lab) or Geology (for CIET) (4)
- Humanities or Social Sciences (3)
- Technical Courses in Major Area as listed below (up to 38 hours)
  - ET Computer Applications
  - Computer Aided Drafting
  - Construction Surveying
  - Statics
  - Strength of Materials
  - Construction Materials
  - Construction Methods
  - Hydraulics or fluid mechanics or environmental technology

Total maximum transfer credit from two-year colleges is 64 credit hours.

### Degree Requirements (4-Year Program)

The BSET in Civil Engineering Technology program consists of 128 credit hours.

#### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- LBST 110X The Arts & Society (3)  
 LBST 2101 Western Cultural and Historical Awareness (3)  
 LBST 2102 Global and Intercultural Connections (3)  
 LBST 221X Ethical and Cultural Critique (3)  
 UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*  
 UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*

#### Social Science Elective Course

Select one of the following:

- ANTH 1101 Introduction to Anthropology (3)\*  
 GEOG 1105 The Location of Human Activity (3)\*  
 POLS 1110 American Politics (3)\*  
 ECON 1101 Economics of Social Issues (3)\*  
 ECON 2101 Principles of Economics – Macro (3)\*  
 SOCY 1101 Introduction to Sociology (3)\*

#### Mathematics and Science Foundation Courses (29 credit hours)

- CHEM 1251 General Chemistry I (3)  
 ETGR 2272 Engineering Analysis II (3)  
 ETGR 3171 Engineering Analysis III (3)  
 or ETGR 4272 Engineering Analysis IV (3)  
 GEOL 1200 Physical Geography (3)  
 MATH 1103 Precalculus Mathematics for Science and Engineering (3)\*  
 MATH 1121 Calculus for Engineering Technology (3)\*  
 or ETGR 2171 Engineering Analysis I (3)\*

- PHYS 1101 Introductory Physics I (3)\*  
 PHYS 1101L Introductory Physics I Lab (1)\*  
 PHYS 1102 Introductory Physics II (3)  
 PHYS 1102L Introductory Physics II Lab (1)  
 STAT 1220 Elements of Statistics I (BUSN) (3)

#### Major Courses (71 credit hours)

- CMET 1680 Professional Development I: Construction Safety (1)\*  
 CMET 2680 Professional Development II: Sustainable Engineering and Construction (1)  
 CMET 3224 Construction Project Administration (3)  
 CMET 3680 Professional Development III: Professional Ethics (1)  
 CMET 4680 Professional Development IV (1)  
 ETCE 1104 Civil/Construction CAD Applications (2)\*  
 ETCE 1211 Construction Surveying I (3)\*  
 ETCE 1211L Construction Surveying I Lab (1)\*  
 ETCE 1222 Construction Materials (3)\*  
 ETCE 1222L Construction Materials Lab (1)\*  
 ETCE 2105 Plan Reading and Quantity Takeoff (3)  
 ETCE 2221 Construction Means and Methods (3)  
 ETCE 2410 Introduction to Environmental Engineering Technology (3)  
 ETCE 3131 Soil Mechanics and Earthwork (3)  
 ETCE 3131L Soil Testing Lab (W) (1)  
 ETCE 3163 Structural Analysis and Design I (3)  
 ETCE 3163L Structures and Materials Lab (1)  
 ETCE 3242 Hydraulics and Hydrology (3)  
 ETCE 3242L Hydraulics Lab (W) (1)  
 ETCE 3264 Structural Analysis II (3)  
 ETCE 4165 Structural Steel Design (3)  
 ETCE 4251 Highway Design and Construction (3)  
 ETCE 4266 Reinforced Concrete Design (3)  
 ETCE 4272 Capstone Project (3) (O, W)  
 ETCE 4350 Construction Geotechnics and Foundations (3)  
 ETGR 1100L Engineering Technology Computer Applications Lab (1)\*  
 ETGR 1103 Technical Drawing I (2)\*  
 ETGR 1201 Introduction to Engineering Technology (2)\*  
 ETGR 2101 Applied Mechanics I (3)\*  
 ETGR 2102 Applied Mechanics II (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)

\*Course must be completed with a grade of C or above.

#### Restricted Elective Courses (7 credit hours)

- Major Elective (3)  
 Major Elective (3)  
 Major Elective Lab (1) (W)

Major Electives are courses approved by the Department of Engineering Technology and

Construction Management for the respective program. A list is maintained in and published by the department.

## Degree Total = 128 credit hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Degree Requirements (2+2-Year Program)

#### AAS Degree (64 credit hours)

AAS transfer students from approved programs receive 64 credit hours for the AAS degree; thus, AAS students need only to complete the upper-division portion of the courses listed below and remediate any entrance deficiencies noted upon matriculation.

#### General Education Courses (12 credit hours)

LBST 110X The Arts & Society (3)  
 LBST 2101 Western Cultural and Historical Awareness (3)  
 LBST 2102 Global and Intercultural Connections (3)  
 LBST 221X Ethical and Cultural Critique (3)

#### Mathematics and Science Foundation Courses (6 credit hours)

CHEM 1251 General Chemistry I (3)\*  
 or GEOL 1200 Physical Geography (3)\*  
 ETGR 3171 Engineering Analysis III (3)  
 or ETGR 4272 Engineering Analysis IV (3)

*\*Transfer students with an AAS may have completed differing science courses at the community college. Generally, AAS transfer students entering the Civil ET programs take Chemistry in the Junior year at UNC Charlotte; however, the following chart provides additional guidance for fulfilling the science requirement at UNC Charlotte:*

Transfer Students with an AAS Degree who have previously taken:	Shall Take at UNC Charlotte:
2 semesters of physics and no chemistry	CHEM 1251 with lab
1 semester of physics and 1 semester of chemistry	PHYS 1102 with lab
2 semesters of physics and 1 semester of chemistry	GEOL 1200 with lab

#### Major Courses (39 hours)

CMET 3224 Construction Project Administration (3)  
 CMET 3680 Professional Development III: Professional Ethics (1)  
 CMET 4680 Professional Development IV (1)  
 ETCE 3131 Soil Mechanics and Earthwork (3)  
 ETCE 3131L Soil Testing Lab (1) (W)  
 ETCE 3163 Structural Analysis and Design I (3)  
 ETCE 3163L Structures and Materials Lab (1) (W)

ETCE 3242 Hydraulics and Hydrology (3)  
 ETCE 3242L Hydraulics Lab (1) (W)  
 ETCE 3264 Structural Analysis II (3)  
 ETCE 4165 Structural Steel Design (3)  
 ETCE 4251 Highway Design and Construction (3)  
 ETCE 4266 Reinforced Concrete Design (3)  
 ETCE 4272 Capstone Project (3) (O,W)  
 ETCE 4350 Construction Geotechnics and Foundations (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)

#### Restricted Elective Courses (7 credit hours)

Major Elective (3)  
 Major Elective (3)  
 Major Elective Lab (1) (W)

Major Electives are courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Concentration in Applied Energy and Sustainable Systems

A Concentration in Applied Energy and Sustainable Systems is available to BSET in Civil Engineering Technology students. Students may focus their Major Elective courses by choosing 14 credit hours in energy- and sustainability-related courses from the following:

CMET 2680 Professional Development II: Sustainable Engineering and Construction (1)  
 ETCE 2410 Introduction to Environmental Engineering Technology (3)  
 ETCE 3271 Building Systems (3)  
 or ETCE 3242 Hydraulics and Hydrology (3)  
 ETCE 3271L Building Systems Laboratory (1) (W)  
 or ETCE 3242L Hydraulics Lab (1) (W)

And any two (2) of the following courses:

ENER 4140 Energy Management (3)  
 ENER 4250 Analysis of Renewable Energy Systems (3)  
 ENER 4275 Air Conditioning Systems (3)  
 ETCE 3271 Building Systems (3)  
 or ETCE 3242 Hydraulics and Hydrology (3)  
 SEGR 4961 Introduction to Energy Systems (3)  
 SEGR 4962 Energy Markets (3)

### Suggested Curriculum

For a suggested curriculum progression toward

completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## BSET in Electrical Engineering Technology

Electrical Engineering Technology includes programming, AC/DC circuits, digital circuits, microprocessors and microcontrollers, solid-state electronics, integrated circuits, analog and digital systems, linear and nonlinear networks, power systems, communications, control systems, and engineering economics.

### Additional Admission Requirements

Students for this degree may enter degree programs in the Department of Engineering Technology and Construction Management as freshmen or as transfer students.

### Freshman Admission

Applicants entering as Freshmen must meet the general University admission requirements.

### Transfer Admission

Transfer admission into the department occurs in one of two situations:

- 1) Transfer applicants not having the Associate in Applied Science (AAS) degree or its equivalent must meet general University admission requirements.
- 2) Transfer applicants with an Associate of Applied Science (AAS) degree must:
  - a) Hold an Associate of Applied Science (AAS) degree in a field appropriate to the option they plan to enter. Acceptable AAS degrees include Architectural, Automation, Building Construction, Civil, Construction, Computer, Controls, Design and Drafting, Electrical, Electronics, Environmental, Fire Protection, Fire Science, Industrial, Instrumentation, Manufacturing, Mechanical, Optics, Robotics, Surveying or similar title with curriculum acceptable to the department. A minimum GPA of 2.2 (out of 4.0) in the AAS degree is required.
  - b) Have completed satisfactorily the prerequisite background courses for the option they plan to enter (missing background courses may be taken at UNC Charlotte).

Acceptance of a completed AAS degree indicates the acceptance of up to 64 credit hours toward the Bachelor of Science in Engineering Technology degree program only. These hours may not be valid toward other degree programs at UNC

Charlotte.

### Residence Requirements

A student must earn the last 30 credit hours toward the BSET degree and the last 12 credit hours in the major at UNC Charlotte to satisfy residence requirements.

### Experiential Learning Requirements

All students must complete an experiential learning course. Experiential courses are practice-oriented courses such as cooperative education, internships, senior design projects, or undergraduate research.

Internships, or *49erships*, involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours and 5 weeks for one semester is required to complete the program. Fall and Spring 49erships are part-time. Summer 49erships may be full- or part-time. Full-time students who are in good University standing, have completed 30 credit hours, and have a 2.0 minimum cumulative GPA are eligible. Internships do not offer academic credit, but are noted on the student's transcript; students pay a course registration fee. Approval for enrollment must be arranged before the student begins a work experience. Students may begin this program during their Sophomore year; transfer students must complete 12 credit hours at UNC Charlotte before making application for the program. For more information, contact the College of Engineering Office of Student Development and Success or the University Career Center.

### Remediation of Academic Entrance Requirements for AAS Transfer Students

In addition to University and College of Engineering requirements, an AAS transfer student who is admitted to any BSET program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance and enrollment in senior-level coursework is prohibited until all deficiencies are removed.

### Course Requirements

Course requirements correspond to the mode of admission for each student as outlined hereafter.

- 1) Entering Freshmen: Students admitted as Freshmen complete the appropriate four year curriculum for the program into which they were admitted.
- 2) Transfer students not holding an appropriate AAS degree: Transfer students not holding an appropriate AAS degree must complete the remaining coursework outlined for the respective

four year curriculum that they were admitted into after evaluation and application of any transfer credit.

- 3) Transfer students holding an appropriate AAS degree: Transfer students with an appropriate Associate of Applied Science (AAS) degree as defined previously under Admission Requirements may begin the program in the Junior year with up to 64 transfer credit hours awarded. Prerequisites for students holding an AAS degree from a community or technical college are listed below.

### Prerequisite Courses

Students transferring with an AAS degree must have satisfactorily completed the following subjects in their two-year program:

- English Composition, Technical Writing and/or Public Speaking (6 credit hours)
- Algebra and Trigonometry (3-6)
- Differential and Integral Calculus (6)
- General Physics (with lab) (4)
- Additional Physics or Chemistry (with lab) or Geology (for CIET) (4)
- Humanities or Social Sciences (3)
- Technical Courses in Major Area as listed below (up to 38 hours)
  - DC Circuits and DC Circuits Laboratory
  - AC Circuits and AC Circuits Laboratory
  - Circuit Simulation
  - Digital Circuits and Digital Circuits Laboratory
  - Electronic Devices and Electronic Devices Laboratory
  - Power Systems and Machines
  - Microprocessors
  - Instrumentation or Programmable Logic Controllers and associated laboratory
  - C Programming

Total maximum transfer credit from two-year colleges is 64 credit hours.

### Degree Requirements (4-Year Program)

The BSET in Electrical Engineering Technology program consists of 128 credit hours.

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- LBST 110X The Arts & Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)

- LBST 221X Ethical and Cultural Critique (3)  
UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*  
UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*

### Social Science Elective Course

Select one of the following:

- ANTH 1101 Introduction to Anthropology (3)\*  
GEOG 1105 The Location of Human Activity (3)\*  
POLS 1110 American Politics (3)\*  
ECON 1101 Economics of Social Issues (3)\*  
ECON 2101 Principles of Economics – Macro (3)\*  
SOCY 1101 Introduction to Sociology (3)\*

### Mathematics and Science Foundation Courses (26 credit hours)

- CHEM 1251 General Chemistry I (3)  
ETGR 2272 Engineering Analysis II (3)\*  
ETGR 3171 Engineering Analysis III (3)  
or ETGR 4272 Engineering Analysis IV (3)  
MATH 1103 Precalculus Mathematics for Science and Engineering (3)\*  
MATH 1121 Calculus for Engineering Technology (3)\*  
or ETGR 2171 Engineering Analysis I (3)\*  
PHYS 1101 Introductory Physics I (3)\*  
PHYS 1101L Introductory Physics I Lab (1)\*  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)  
STAT 1220 Elements of Statistics I (BUSN) (3)

### Major Courses (75 credit hours)

- ELET 1101 Simulation and Schematic Capture (1)\*  
ELET 1111 DC Circuits (3)\*  
ELET 1111L DC Circuits Lab (1)\*  
ELET 1212 AC Circuits (3)\*  
ELET 1212L AC Circuits Lab (1)\*  
ELET 1231 Digital Circuits (3)\*  
ELET 1231L Digital Circuits Lab (1)\*  
ELET 2121 Electronics I (3)\*  
ELET 2121L Electronics I Lab (1)\*  
ELET 2141 Introduction to Power Systems (3)  
ELET 2201 C Programming (3)  
ELET 2231 Microprocessor Fundamentals (3)  
ELET 2241 Instrumentation and Controls (3)  
ELET 2241L Instrumentation Lab (1)  
ELET 2290 Sophomore Practicum (2)  
ELET 3113 Network Analysis (3)  
ELET 3132 Digital Systems (3)  
ELET 3132L Digital Systems Lab (1) (W)  
ELET 3191 Junior Practicum I (1)  
ELET 3222 Electronics II (3)  
ELET 3222L Electronics II Lab (1) (W)  
ELET 3232 Microcontroller Systems (3)  
ELET 3292 Junior Practicum II (1)  
ELET 4123 Active Filters (3)  
ELET 4142 Power Electronics (3)  
ELET 4151 Communication Systems (3)

ELET 4151L Communication Systems Lab (1) (W)  
 ELET 4242 Control Systems (3)  
 ETGR 1100L Engineering Technology Computer Applications Lab (1)\*  
 ETGR 1201 Introduction to Engineering Technology (2)\*  
 ETGR 2122 Technical Programming (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)  
 ETGR 4100 Capstone Design Project I (2) (O, W)  
 ETGR 4200 Capstone Design Project II (2) (O, W)

*\*Course must be completed with a grade of C or above.*

#### Restricted Elective Courses (6 credit hours)

Select two 3-credit courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

### Degree Total = 128 credit hours

#### Degree Requirements (2+2-Year Program)

The BSET in Electrical Engineering Technology program consists of 128 credit hours.

#### AAS Degree (64 credit hours)

AAS transfer students from approved programs receive 64 credit hours for the AAS degree; thus, AAS students need only to complete the upper-division portion of the courses listed below and remediate any entrance deficiencies noted upon matriculation.

#### General Education Courses (12 credit hours)

LBST 110X The Arts & Society (3)  
 LBST 2101 Western Cultural and Historical Awareness (3)  
 LBST 2102 Global and Intercultural Connections (3)  
 LBST 221X Ethical and Cultural Critique (3)

#### Mathematics and Science Foundation Courses (6 credit hours)

CHEM 1251 General Chemistry I (3)\*  
 ETGR 3171 Engineering Analysis III (3)  
 or ETGR 4272 Engineering Analysis IV (3)

*\*Transfer students with an AAS may have completed differing science courses at the community college. Generally, AAS transfer students entering the Electrical ET programs take Chemistry in the Junior year at UNC Charlotte; however, the following chart provides additional guidance for fulfilling the science requirement at UNC Charlotte:*

Transfer Students with an AAS Degree who have previously taken:	Shall Take at UNC Charlotte:
2 semesters of physics with lab and no chemistry	CHEM 1251
1 semester of physics with lab and 1 semester of chemistry	PHYS 1102 with lab
2 semesters of physics with lab and 1 semester of chemistry	GEOL 1200, BIOL 1110, PHYS 1130, or CHEM 1252

#### Major Courses (40 hours)

ELET 3113 Network Analysis (3)  
 ELET 3132 Digital Systems (3)  
 ELET 3132L Digital Systems Lab (1) (W)  
 ELET 3191 Junior Practicum I (1)  
 ELET 3222 Electronics II (3)  
 ELET 3222L Electronics II Lab (1) (W)  
 ELET 3232 Microcontroller Systems (3)  
 ELET 3292 Junior Practicum II (1)  
 ELET 4123 Active Filters (3)  
 ELET 4142 Power Electronics (3)  
 ELET 4151 Communication Systems (3)  
 ELET 4151L Communication Systems Lab (1) (W)  
 ELET 4242 Control Systems (3)  
 ETGR 2122 Technical Programming (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)  
 ETGR 4100 Capstone Design Project I (2) (O, W)\*  
 ETGR 4200 Capstone Design Project II (2) (O, W)

*\*Course must be completed with a grade of C or above.*

#### Restricted Elective Courses (6 credit hours)

Select two 3-credit hour courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

### Degree Total = 128 credit hours

#### Concentration in Applied Energy

A Concentration in Applied Energy is available to BSET in Electrical Engineering Technology students. Students may focus their studies by successfully completing twelve (12) credit hours from the following:

ELET 2141 Introduction to Power Systems (3)  
 ELET 4142 Power Electronics (3)  
 ELET 4243 Power Networks (3)  
 ENER 4140 Energy Management (3)  
 ENER 4250 Analysis of Renewable Systems (3)  
 ENER 4260 Hydrogen Production and Storage (3)  
 ENER 4280 Fuel Cell Technology (3)  
 ETCE 3271 Building Systems (3)  
 SEGR 4961 Introduction to Energy Systems (3)  
 SEGR 4962 Energy Markets (3)  
 Other courses as approved

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## BSET in Fire Safety Engineering Technology with Concentration in Fire Protection

Fire Safety Engineering Technology includes principles of fire behavior and combustion, fire protection, hydraulics, fire prevention, building construction for fire service, industrial hazards, risk management, fire safety problem analysis, active and passive protection systems, command and control, fire protection law, structural fire safety, performance-based design for fire safety, fire hazard analysis, technical drawing and CAD, research investigation, and leadership. The FSET program has two available concentrations; one in fire safety and another in fire protection. The Concentration in Fire Safety is designed to prepare students for career opportunities in fire service and administration. The Concentration in Fire Protection is designed to prepare students for career opportunities such as fire suppression systems engineering and fire behavior forensic and fire investigation.

## Additional Admission Requirements

Students for this degree may enter degree programs in the Department of Engineering Technology and Construction Management as freshmen or as transfer students.

### Freshman Admission

Applicants entering as Freshmen must meet the general University admission requirements.

### Transfer Admission

Transfer admission into the department occurs in one of two situations:

- 3) Transfer applicants not having the Associate in Applied Science (AAS) degree or its equivalent must meet general University admission requirements.
- 4) Transfer applicants with an Associate of Applied Science (AAS) degree must:
  - c) Hold an Associate of Applied Science (AAS) degree in a field appropriate to the option they plan to enter. Acceptable AAS degrees include Architectural, Automation, Building Construction, Civil, Construction, Computer, Controls, Design and Drafting, Electrical, Electronics, Environmental, Fire Protection, Fire Science, Industrial, Instrumentation,

Manufacturing, Mechanical, Optics, Robotics, Surveying or similar title with curriculum acceptable to the department. A minimum GPA of 2.2 (out of 4.0) in the AAS degree is required.

- d) Have completed satisfactorily the prerequisite background courses for the option they plan to enter (missing background courses may be taken at UNC Charlotte).

Acceptance of a completed AAS degree indicates the acceptance of up to 64 credit hours toward the Bachelor of Science in Engineering Technology degree program only. These hours may not be valid toward other degree programs at UNC Charlotte.

## Residence Requirements

A student must earn the last 30 credit hours toward the BSET degree and the last 12 credit hours in the major at UNC Charlotte to satisfy residence requirements.

## Experiential Learning Requirements

All students must complete an experiential learning course. Experiential courses are practice-oriented courses such as cooperative education, internships, senior design projects, or undergraduate research.

Internships, or *49erships*, involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours and 5 weeks for one semester is required to complete the program. Fall and Spring 49erships are part-time. Summer 49erships may be full- or part-time. Full-time students who are in good University standing, have completed 30 credit hours, and have a 2.0 minimum cumulative GPA are eligible. Internships do not offer academic credit, but are noted on the student's transcript; students pay a course registration fee. Approval for enrollment must be arranged before the student begins a work experience. Students may begin this program during their Sophomore year; transfer students must complete 12 credit hours at UNC Charlotte before making application for the program. For more information, contact the College of Engineering Office of Student Development and Success or the University Career Center.

## Remediation of Academic Entrance Requirements for AAS Transfer Students

In addition to University and College of Engineering requirements, an AAS transfer student who is admitted to any BSET program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance and enrollment in senior-

level coursework is prohibited until all deficiencies are removed.

## Course Requirements

Course requirements correspond to the mode of admission for each student as outlined hereafter.

- 4) Entering Freshmen: Students admitted as Freshmen complete the appropriate four year curriculum for the program into which they were admitted.
- 5) Transfer students not holding an appropriate AAS degree: Transfer students not holding an appropriate AAS degree must complete the remaining coursework outlined for the respective four year curriculum that they were admitted into after evaluation and application of any transfer credit.
- 6) Transfer students holding an appropriate AAS degree: Transfer students with an appropriate Associate of Applied Science (AAS) degree as defined previously under Admission Requirements may begin the program in the Junior year with up to 64 transfer credit hours awarded. Prerequisites for students holding an AAS degree from a community or technical college are listed below.

## Prerequisite Courses

Students transferring with an AAS degree must have satisfactorily completed the following subjects in their two-year program:

- English Composition, Technical Writing and/or Public Speaking (6 credit hours)
- Algebra and Trigonometry (3-6)
- Differential and Integral Calculus (6)
- General Physics (with lab) (4)
- Additional Physics or Chemistry (with lab) or Geology (for CIET) (4)
- Humanities or Social Sciences (3)
- Technical Courses in Major Area as listed below (up to 38 hours)
  - Drafting/Computer-Aided Drafting
  - Statics
  - Introduction to Fire Protection
  - Fire Prevention and Public Education
  - Fire Detection and Fire Investigation
  - Building Construction
  - Inspections and Codes
  - Sprinklers and Automatic Alarms
  - Firefighting Strategies
  - Hydraulics and Water Distribution
  - Managing Fire Services

Total maximum transfer credit from two-year colleges is 64 credit hours.

## Degree Requirements (4-Year Program)

The BSET in Fire Safety Engineering Technology with a Concentration in Fire Protection program consists of 125 credit hours.

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- LBST 110X The Arts & Society (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 221X Ethical and Cultural Critique (3)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*

### Social Science Elective Course

*Select one of the following:*

- ANTH 1101 Introduction to Anthropology (3)\*
- GEOG 1105 The Location of Human Activity (3)\*
- POLS 1110 American Politics (3)\*
- ECON 1101 Economics of Social Issues (3)\*
- ECON 2101 Principles of Economics – Macro (3)\*
- SOCY 1101 Introduction to Sociology (3)\*

### Mathematics and Science Foundation Courses (26 credit hours)

- CHEM 1251 General Chemistry I (3)
- ETGR 2171 Engineering Analysis I (3)  
or MATH 1121 Calculus for Engineering Technology (3)
- ETGR 2272 Engineering Analysis II (3)
- ETGR 3171 Engineering Analysis III (3)  
or ETGR 4272 Engineering Analysis IV (3)
- MATH 1103 Pre-Calculus Mathematics for Science and Engineering (3)\*
- PHYS 1101 Introductory Physics I (3)\*
- PHYS 1101L Introductory Physics I Lab (1)\*
- PHYS 1102 Introductory Physics II (3)
- PHYS 1102L Introductory Physics II Lab (1)
- STAT 1220 Elements of Statistics I (BUSN) (3)\*

### Major Courses (73 credit hours)

- ETFS 1120 Fundamentals of Fire Protection (3)\*
- ETFS 1232 Fire Protection Hydraulics and Water Supply (3)\*
- ETFS 2124 Fundamentals of Fire Prevention (3)
- ETFS 2126 Fire Investigation (3)
- ETFS 2132 Building Construction for Fire Protection(3)
- ETFS 2144 Fire Protection Systems (3)\*
- ETFS 2264 Fire Behavior and Combustion (3)

ETFS 2264L Fire Behavior and Combustion Lab (1) (W)  
 ETFS 3103 Principles of Fire Behavior (3)  
 ETFS 3103L Principles of Fire Behavior Lab (1) (W)  
 ETFS 3113 Building Fire Safety (3) (W)  
 ETFS 3123 Industrial Hazards and Electricity (3)  
 ETFS 3144 Active Fire Protection (3)  
 ETFS 3233 Introduction to Performance-Based Fire Safety (3)  
 ETFS 3242L Fire Testing and Measurement Lab (1) (W)  
 ETFS 3283 Fire Hazard Analysis (3)  
 ETFS 3344 Introduction to Structural Fire Safety (3)  
 ETFS 3344L Introduction to Structural Fire Safety Lab (1) (W)  
 ETGR 1100L Engineering Technology Computer Applications Lab (1)\*  
 ETGR 1103 Technical Drawing I (2)\*  
 ETGR 1201 Introduction to Engineering Technology (2)\*  
 ETGR 2101 Applied Mechanics I (3)  
 ETGR 2106 Electrical Circuits (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)  
 ETME 3123 Strength of Materials (3)  
 or ETGR 2102 Applied Mechanics II (3)  
 ETME 3133 Fluid Mechanics (3)  
 ETME 3143 Thermodynamics (3)  
 ETME 3244 Applied Heat Transfer (3)

*\*Course must be completed with a grade of C or above.*

### Restricted Elective Courses (5 credit hours)

Select two courses with a minimum of 5 credit hours approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

**Degree Total = 125 credit hours**

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Degree Requirements (2+2-Year Program)

The BSET in Fire Safety Engineering Technology with a Concentration in Fire Protection program consists of 125 credit hours.

### AAS Degree (64 credit hours)

AAS transfer students from approved programs receive 64 credit hours for the AAS degree; thus, AAS students need only to complete the upper-division portion of the

courses listed below and remediate any entrance deficiencies noted upon matriculation.

### General Education Courses (6 credit hours)

LBST 2102 Global and Intercultural Connections (3)  
 LBST 221X Ethical and Cultural Critique (3)

### Mathematics and Science Foundation Courses (9 credit hours)

CHEM 1251 General Chemistry I (3)  
 ETGR 2272 Engineering Analysis II (3)  
 ETGR 3171 Engineering Analysis III (3)  
 or ETGR 4272 Engineering Analysis IV (3)

### Major Courses (43 credit hours)

ETFS 3103 Principles of Fire Behavior (3)  
 ETFS 3103L Principles of Fire Behavior Lab (1) (W)  
 ETFS 3113 Building Fire Safety (3) (W)  
 ETFS 3123 Industrial Hazards and Electricity (3)  
 ETFS 3144 Active Fire Protection (3)  
 ETFS 3233 Introduction to Performance-Based Fire Safety (3)  
 ETFS 3242L Fire Testing and Measurements Lab (1) (W)  
 ETFS 3283 Fire Hazard Analysis (3)  
 ETFS 3344 Introduction to Structural Fire Safety (3)  
 ETFS 3344L Introduction to Structural Fire Safety Lab (1) (W)  
 ETGR 2106 Electrical Circuits (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)  
 ETME 3123 Strength of Materials (3)  
 or ETGR 2102 Applied Mechanics II (3)  
 ETME 3133 Fluid Mechanics (3)  
 ETME 3143 Thermodynamics (3)  
 ETME 4244 Applied Heat Transfer (3)

### Restricted Elective Course (3 credit hours)

Select one 3-credit course approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

**Degree Total = 125 credit hours**

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## BSET in Fire Safety Engineering Technology with Concentration in Fire Safety

Fire Safety Engineering Technology includes principles of fire behavior and combustion, fire protection, hydraulics, fire prevention, building construction for fire service, industrial hazards, risk management, fire safety problem analysis, active and passive protection systems, command and control, fire protection law, structural fire safety, performance-based design for fire safety, fire hazard analysis, technical drawing and CAD, research investigation, and leadership. The FSET program has two available concentrations; one in fire safety and another in fire protection. The Concentration in Fire Safety is designed to prepare students for career opportunities in fire service and administration. The Concentration in Fire Protection is designed to prepare students for career opportunities such as fire suppression systems engineering and fire behavior forensic and fire investigation.

### Additional Admission Requirements

Students for this degree may enter degree programs in the Department of Engineering Technology and Construction Management as freshmen or as transfer students.

#### Freshman Admission

Applicants entering as Freshmen must meet the general University admission requirements.

#### Transfer Admission

Transfer admission into the department occurs in one of two situations:

- 5) Transfer applicants not having the Associate in Applied Science (AAS) degree or its equivalent must meet general University admission requirements.
- 6) Transfer applicants with an Associate of Applied Science (AAS) degree must:
  - e) Hold an Associate of Applied Science (AAS) degree in a field appropriate to the option they plan to enter. Acceptable AAS degrees include Architectural, Automation, Building Construction, Civil, Construction, Computer, Controls, Design and Drafting, Electrical, Electronics, Environmental, Fire Protection, Fire Science, Industrial, Instrumentation, Manufacturing, Mechanical, Optics, Robotics, Surveying or similar title with curriculum acceptable to the department. A minimum GPA of 2.2 (out of 4.0) in the AAS degree is required.

- f) Have completed satisfactorily the prerequisite background courses for the option they plan to enter (missing background courses may be taken at UNC Charlotte).

Acceptance of a completed AAS degree indicates the acceptance of up to 64 credit hours toward the Bachelor of Science in Engineering Technology degree program only. These hours may not be valid toward other degree programs at UNC Charlotte.

### Residence Requirements

A student must earn the last 30 credit hours toward the BSET degree and the last 12 credit hours in the major at UNC Charlotte to satisfy residence requirements.

### Experiential Learning Requirements

All students must complete an experiential learning course. Experiential courses are practice-oriented courses such as cooperative education, internships, senior design projects, or undergraduate research.

Internships, or *49erships*, involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours and 5 weeks for one semester is required to complete the program. Fall and Spring 49erships are part-time. Summer 49erships may be full- or part-time. Full-time students who are in good University standing, have completed 30 credit hours, and have a 2.0 minimum cumulative GPA are eligible. Internships do not offer academic credit, but are noted on the student's transcript; students pay a course registration fee. Approval for enrollment must be arranged before the student begins a work experience. Students may begin this program during their Sophomore year; transfer students must complete 12 credit hours at UNC Charlotte before making application for the program. For more information, contact the College of Engineering Office of Student Development and Success or the University Career Center.

### Remediation of Academic Entrance Requirements for AAS Transfer Students

In addition to University and College of Engineering requirements, an AAS transfer student who is admitted to any BSET program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance and enrollment in senior-level coursework is prohibited until all deficiencies are removed.

### Course Requirements

Course requirements correspond to the mode of admission for each student as outlined hereafter.

- 7) Entering Freshmen: Students admitted as Freshmen complete the appropriate four year curriculum for the program into which they were admitted.
- 8) Transfer students not holding an appropriate AAS degree: Transfer students not holding an appropriate AAS degree must complete the remaining coursework outlined for the respective four year curriculum that they were admitted into after evaluation and application of any transfer credit.
- 9) Transfer students holding an appropriate AAS degree: Transfer students with an appropriate Associate of Applied Science (AAS) degree as defined previously under Admission Requirements may begin the program in the Junior year with up to 64 transfer credit hours awarded. Prerequisites for students holding an AAS degree from a community or technical college are listed below.

### Prerequisite Courses

Students transferring with an AAS degree must have satisfactorily completed the following subjects in their two-year associate degree program:

- English Composition, Technical Writing and/or Public Speaking (6-9 credit hours)
- Algebra (3 credit hours)
- Two science courses with Laboratory (8 credit hours)
- Humanities and/or Social Sciences (6-9 credit hours)
- Computer Literacy Course
- Technical Courses in Major Area as listed below (32-38 credit hours)
  - Introduction to Fire Protection
  - Fire Prevention and Public Education
  - Fire Detection and Fire Investigation
  - Building Construction
  - Inspections and Codes
  - Sprinklers and Automatic Alarms
  - Fire Protection Law
  - Fire Fighting Strategies
  - Chemistry of Hazardous Materials
  - Hydraulics and Water Distribution
  - Managing Fire Services

Total maximum transfer credit from two-year colleges is 64 credit hours.

### Degree Requirements (4-Year Program)

The BSET in Fire Safety Engineering Technology with a Concentration in Fire Safety program consists of 125 credit hours.

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- LBST 110X The Arts & Society (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 221X Ethical and Cultural Critique (3)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*

### Social Science Elective Course

Select one of the following:

- ANTH 1101 Introduction to Anthropology (3)\*
- GEOG 1105 The Location of Human Activity (3)\*
- POLS 1110 American Politics (3)\*
- ECON 1101 Economics of Social Issues (3)\*
- ECON 2101 Principles of Economics – Macro (3)\*
- SOCY 1101 Introduction to Sociology (3)\*

### Mathematics and Science Foundation Courses (17 credit hours)

- CHEM 1251 General Chemistry I (3)
- MATH 1100 College Algebra and Probability (3)\*
- PHYS 1101 Introductory Physics I (3)\*
- PHYS 1101L Introductory Physics I Lab (1)\*
- PHYS 1102 Introductory Physics II (3)
- PHYS 1102L Introductory Physics II Lab (1)
- STAT 1220 Elements of Statistics I (BUSN) (3)\*

### Major Courses (76 credit hours)

- ETFS 1120 Fundamentals of Fire Protection (3)\*
- ETFS 1232 Fire Protection Hydraulics and Water Supply (3)\*
- ETFS 1252 Fire Protection Law (3)\*
- ETFS 2124 Fundamentals of Fire Prevention (3)
- ETFS 2126 Fire Investigation (3)\*
- ETFS 2132 Building Construction for Fire Protection (3)
- ETFS 2144 Fire Protection Systems (3)\*
- ETFS 2230 Hazardous Materials (3)
- ETFS 2264 Fire Behavior and Combustion (3)
- ETFS 2264L Fire Behavior and Combustion Lab (W) (1)
- ETFS 3103 Principles of Fire Behavior (3)
- ETFS 3113 Building Fire Safety (3) (W)
- ETFS 3123 Industrial Hazards and Electricity (3)
- ETFS 3124 Risk Management for Emergency Service (3)
- ETFS 3144 Active Fire Protection (3)
- ETFS 3233 Introduction to Performance-Based Fire Safety (3)

ETFS 4123 Community Threat Assessment and Mitigation (3)  
 ETFS 4243 Research Methodology (3) (O, W)  
 ETFS 4323 Advanced Fire Service Administration (3)  
 ETGR 1100L Engineering Technology Computer Applications Lab (1)\*  
 ETGR 1103 Technical Drawing I (2)  
 ETGR 1201 Introduction to Engineering Technology (2)\*  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 or ETFS 3611 Professional Leadership Seminar (1) (O, W)  
 ETGR 3222 Engineering Economics (3)  
 POLS 3119 State and Local Government (3)  
 POLS 3126 Introduction to Public Administration (3)  
 PSYC 2171 Introduction to Industrial / Organizational Psychology (3)  
 PSYC 3174 Organizational Psychology (3)

*\*Course must be completed with a grade of C or above.*

#### **Restricted Elective Courses (11 credit hours)**

Select elective courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

**Degree Total = 125 credit hours**

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

#### **Degree Requirements (2+2-Year Program)**

The BSET in Fire Safety Engineering Technology with a Concentration in Fire Safety program consists of 125 credit hours.

#### **AAS Degree (64 credit hours)**

AAS transfer students from approved programs receive 64 credit hours for the AAS degree; thus, AAS students need only to complete the upper-division portion of the courses listed below and remediate any entrance deficiencies noted upon matriculation.

#### **General Education Courses (6 credit hours)**

LBST 2102 Global and Intercultural Connections (3)  
 LBST 221X Ethical and Cultural Critique (3)

#### **Mathematics and Science Foundation Course (3 credit hours)**

CHEM 1251 General Chemistry I (3)

#### **Major Courses (43 credit hours)**

ETFS 3103 Principles of Fire Behavior (3)

ETFS 3113 Building Fire Safety (3) (W)  
 ETFS 3123 Industrial Hazards and Electricity (3)  
 ETFS 3124 Risk Management for Emergency Service (3)  
 ETFS 3144 Active Fire Protection (3)  
 ETFS 3233 Introduction to Performance-Based Fire Safety (3)  
 ETFS 4123 Community Threat Assessment and Mitigation (3)  
 ETFS 4243 Research Methodology (3) (O, W)  
 POLS 3126 Introduction to Public Administration (3)  
 ETFS 4323 Advanced Fire Service Administration (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 or ETFS 3611 Professional Leadership Seminar (1) (O, W)  
 ETGR 3222 Engineering Economics (3)  
 POLS 3119 State and Local Government (3)  
 PSYC 2171 Introduction to Industrial / Organizational Psychology (3)  
 PSYC 3174 Organizational Psychology (3)

#### **Restricted Elective Courses (9 credit hours)**

Select three 3-hour courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

**Degree Total = 125 credit hours**

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **BSET in Mechanical Engineering Technology**

Mechanical Engineering Technology includes technical and mechanical drawing, computer-aided design, machine design, manufacturing and machine processes, fluid power systems, statics and strength of materials, mechanisms, stress analysis, instrumentation and controls, thermodynamic systems, energy, heat transfer, dynamics, methods analysis, and engineering economics.

#### **Additional Admission Requirements**

Students for this degree may enter degree programs in the Department of Engineering Technology and Construction Management as freshmen or as transfer students.

#### **Freshman Admission**

Applicants entering as Freshmen must meet the general University admission requirements.

## Transfer Admission

Transfer admission into the department occurs in one of two situations:

- 7) Transfer applicants not having the Associate in Applied Science (AAS) degree or its equivalent must meet general University admission requirements.
- 8) Transfer applicants with an Associate of Applied Science (AAS) degree must:
  - g) Hold an Associate of Applied Science (AAS) degree in a field appropriate to the option they plan to enter. Acceptable AAS degrees include Architectural, Automation, Building Construction, Civil, Construction, Computer, Controls, Design and Drafting, Electrical, Electronics, Environmental, Fire Protection, Fire Science, Industrial, Instrumentation, Manufacturing, Mechanical, Optics, Robotics, Surveying or similar title with curriculum acceptable to the department. A minimum GPA of 2.2 (out of 4.0) in the AAS degree is required.
  - h) Have completed satisfactorily the prerequisite background courses for the option they plan to enter (missing background courses may be taken at UNC Charlotte).

Acceptance of a completed AAS degree indicates the acceptance of up to 64 credit hours toward the Bachelor of Science in Engineering Technology degree program only. These hours may not be valid toward other degree programs at UNC Charlotte.

## Residence Requirements

A student must earn the last 30 credit hours toward the BSET degree and the last 12 credit hours in the major at UNC Charlotte to satisfy residence requirements.

## Experiential Learning Requirements

All students must complete an experiential learning course. Experiential courses are practice-oriented courses such as cooperative education, internships, senior design projects, or undergraduate research.

Internships, or *49ershops*, involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours and 5 weeks for one semester is required to complete the program. Fall and Spring 49ershops are part-time. Summer 49ershops may be full- or part-time. Full-time students who are in good University standing, have completed 30 credit hours, and have a 2.0 minimum cumulative GPA are eligible. Internships do not offer academic

credit, but are noted on the student's transcript; students pay a course registration fee. Approval for enrollment must be arranged before the student begins a work experience. Students may begin this program during their Sophomore year; transfer students must complete 12 credit hours at UNC Charlotte before making application for the program. For more information, contact the College of Engineering Office of Student Development and Success or the University Career Center.

## Remediation of Academic Entrance Requirements for AAS Transfer Students

In addition to University and College of Engineering requirements, an AAS transfer student who is admitted to any BSET program without meeting ALL published admission requirements is expected to remove all admission deficiencies within one year. Violators are subject to discontinuance and enrollment in senior-level coursework is prohibited until all deficiencies are removed.

## Course Requirements

Course requirements correspond to the mode of admission for each student as outlined hereafter.

- 1) Entering Freshmen: Students admitted as Freshmen complete the appropriate four year curriculum for the program into which they were admitted.
- 2) Transfer students not holding an appropriate AAS degree: Transfer students not holding an appropriate AAS degree must complete the remaining coursework outlined for the respective four year curriculum that they were admitted into after evaluation and application of any transfer credit.
- 3) Transfer students holding an appropriate AAS degree: Transfer students with an appropriate Associate of Applied Science (AAS) degree as defined previously under Admission Requirements may begin the program in the Junior year with up to 64 transfer credit hours awarded. Prerequisites for students holding an AAS degree from a community or technical college are listed below.

## Prerequisite Courses

Students transferring with an AAS degree must have satisfactorily completed the following subjects in their two-year program:

- English Composition, Technical Writing and/or Public Speaking (6 credit hours)
- Algebra and Trigonometry (3-6)
- Differential and Integral Calculus (6)
- General Physics (with lab) (4)

- Additional Physics or Chemistry (with lab) or Geology (for CIET) (4)
- Humanities or Social Sciences (3)
- Technical Courses in Major Area as listed below (up to 38 hours)
  - Parametric Solid Modeling (using software such as SolidWorks, Inventor, or ProEngineer)
  - Machine Shop Practices
  - Manufacturing Processes
  - Introduction to Design
  - Statics
  - Metallurgy or Engineering Materials
  - Kinematics or Mechanisms
  - DC Circuits (in addition to Physics II)
  - Computer Programming (using a higher level language such as Visual Basic, FORTRAN, or C++)

Total maximum transfer credit from two-year colleges is 64 credit hours.

### Degree Requirements (4-Year Program)

The BSET in Mechanical Engineering Technology program consists of 128 credit hours.

#### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- LBST 110X The Arts & Society (3)  
 LBST 2101 Western Cultural and Historical Awareness (3)  
 LBST 2102 Global and Intercultural Connections (3)  
 LBST 221X Ethical and Cultural Critique (3)  
 UWRT 1101 Writing and Inquiry in Academic Contexts I (3)\*  
 UWRT 1102 Writing and Inquiry in Academic Contexts II (3)\*

#### Social Science Elective Course

Select one of the following:

- ANTH 1101 Introduction to Anthropology (3)  
 GEOG 1105 The Location of Human Activity (3)  
 POLS 1110 American Politics (3)  
 ECON 1101 Economics of Social Issues (3)  
 ECON 2101 Principles of Economics – Macro (3)  
 SOCY 1101 Introduction to Sociology (3)

#### Mathematics and Science Foundation Courses (26 credit hours)

- CHEM 1251 General Chemistry I (3)  
 ETGR 2272 Engineering Analysis II (3)  
 ETGR 3171 Engineering Analysis III (3)  
 or ETGR 4272 Engineering Analysis IV (3)  
 MATH 1103 Precalculus Mathematics for Science and

- Engineering (3)\*  
 MATH 1121 Calculus for Engineering Technology (3)\*  
 or ETGR 2171 Engineering Analysis I (3)\*  
 PHYS 1101 Introductory Physics I (3)\*  
 PHYS 1101L Introductory Physics I Lab (1)\*  
 PHYS 1102 Introductory Physics II (3)  
 PHYS 1102L Introductory Physics II Lab (1)  
 STAT 1220 Elements of Statistics I (BUSN) (3)\*

#### Major Courses (69 credit hours)

- ETGR 1100L Engineering Technology Computer Applications Lab (1)\*  
 ETGR 1201 Introduction to Engineering Technology (2)\*  
 ETGR 2101 Applied Mechanics I (3)\*  
 ETGR 2106 Electronic Circuits and Devices (3)  
 ETGR 2122 Technical Programming (3)  
 ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
 ETGR 3222 Engineering Economics (3)  
 ETGR 3295 Multidisciplinary Professional Development (1)  
 ETGR 4100 Capstone Design Project I (2) (O, W)\*  
 ETGR 4200 Capstone Design Project II (2) (O, W)  
 ETME 1111 CAD Modeling 1 (3)\*  
 ETME 1112 CAD Modeling 2 (3)\*  
 ETME 2100 Sophomore Design Practicum (2)\*  
 ETME 2100L Sophomore Design Practicum Lab (1)\*  
 ETME 2102 Mechanisms (3)  
 ETME 2130 Applied Materials and Manufacturing I (3)  
 ETME 2131 Applied Materials and Manufacturing II (2)  
 ETME 3100 Junior Design Practicum (2)  
 ETME 3100L Junior Design Practicum Lab (1)  
 ETME 3113 Dynamics (3)  
 ETME 3123 Strength of Materials (3)  
 ETME 3123L Stress Analysis Lab (1) (W)  
 ETME 3133 Fluid Mechanics (3)  
 ETME 3133L Fluid Mechanics Lab (W) (1)  
 ETME 3143 Thermodynamics (3)  
 ETME 3150 Applied CAD Modeling and Simulation (3)  
 ETME 3213 Machine Design 1 (3)  
 ETME 4143L Thermodynamics and Heat Transfer Lab (1) (W)  
 ETME 4163 Instrumentation and Controls (3)  
 ETME 4163L Instrumentation Lab (1) (W)  
 ETME 4244 Applied Heat Transfer (3)

\*Course must be completed with a grade of C or above.

#### Restricted Elective Courses (12 credit hours)

Select four 3-credit hour courses approved by the Department of Engineering Technology and Construction Management for the respective program. A list is maintained in and published by the department.

## Degree Total = 128 credit hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Degree Requirements (2+2-Year Program)

The BSET in Mechanical Engineering Technology program consists of 128 credit hours.

#### AAS Degree (64 credit hours)

AAS transfer students from approved programs receive 64 credit hours for the AAS degree; thus, AAS students need only to complete the upper-division portion of the courses listed below and remediate any entrance deficiencies noted upon matriculation.

#### General Education Courses (6 credit hours)

LBST 2102 Global and Intercultural Connections (3)  
LBST 221X Ethical and Cultural Critique (3)

#### Mathematics and Science Foundation Courses (6 credit hours)

ETGR 3171 Engineering Analysis III (3)  
or ETGR 4272 Engineering Analysis IV (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)

#### Major Courses (40 credit hours)

ETGR 3071 Engineering Technology Professional Seminar (1) (W)  
ETGR 3222 Engineering Economics (3)  
ETGR 3295 Multidisciplinary Professional Development (1)  
ETGR 4100 Capstone Design Project I (2) (O, W)\*  
ETGR 4200 Capstone Design Project II (2) (O, W)  
ETME 3100 Junior Design Practicum (2)  
ETME 3100L Junior Design Practicum Lab (1)  
ETME 3113 Dynamics (3)  
ETME 3123 Strength of Materials (3)  
ETME 3123L Stress Analysis Lab (1) (W)  
ETME 3133 Fluid Mechanics (3)  
ETME 3133L Fluid Mechanics Lab (1) (W)  
ETME 3143 Thermodynamics (3)  
ETME 3150 Applied CAD Modeling and Simulation (3)  
ETME 3213 Machine Design I (3)  
ETME 4143L Thermodynamics and Heat Transfer Lab (1) (W)  
ETME 4163 Instrumentation and Controls (3)  
ETME 4163L Instrumentation Lab (1) (W)  
ETME 4244 Applied Heat Transfer (3)

*\*Course must be completed with a grade of C or above.*

#### Restricted Elective Courses (12 credit hours)

Select four 3-credit hour courses approved by the Department of Engineering Technology and

Construction Management for the respective program. A list is maintained in and published by the department.

## Degree Total = 128 credit hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Department of Mechanical Engineering and Engineering Science

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<http://mees.uncc.edu>

Mechanical engineering is possibly the broadest of the engineering disciplines. Mechanical engineers are involved in almost all aspects of the technological problems facing today's society. Among the major concerns of the mechanical engineer are problems related to conversion, utilization, and conservation of our limited energy resources. Additional important areas for the mechanical engineer include the design and analysis of machines, structures, and manufacturing processes related to the industrial output of the nation. Increasingly, this design and analysis is computer based using the techniques of computer-aided design (CAD/CAM).

A sound understanding of the engineering sciences is fundamental to the education of engineers in every discipline. The engineering sciences are generally identified as those areas of engineering that emphasize the application of the fundamental principles of the physical sciences, primarily physics and chemistry, to engineering problems. Some classical and emerging engineering areas that fall within this field include thermodynamics, fluid mechanics, engineering mechanics, engineering materials, nuclear and chemical sciences, microelectronics theory and fabrication, manufacturing, metrology, and the solid state sciences.

## Degree Programs

The Department of Mechanical Engineering and Engineering Science offers an undergraduate program leading to a Bachelor of Science in Mechanical Engineering (B.S.M.E.) degree (with optional Concentrations in Biomedical Engineering, Energy Engineering, or Motorsports Engineering) and graduate programs leading to Master of Science in Mechanical Engineering (M.S.M.E.), Master of Science in Engineering (M.S.E.) and Doctor of Philosophy (Ph.D.) degrees. Additionally, a dual degree program is offered in cooperation with the Department of Physics. Using the flexibility provided by the technical electives, and

with engineering career counseling, a student can develop a variety of educational programs that would provide the background for professional engineering licensing and practice in any of the areas included within mechanical engineering and/or the engineering sciences. Students can also prepare for graduate study in mechanical engineering, materials science, or any of the recognized areas covered by the engineering sciences. Individualized study programs in one of the interdisciplinary fields involving the merger of engineering and the various science areas, such as bioengineering, microelectronics, or chemical engineering sciences, can be developed.



## Program Educational Objectives

- Our graduates will apply their knowledge to areas beyond their coursework, enabling them to succeed as engineers in: society, graduate or professional studies, and lifelong learning.
- Our graduates will make ethical engineering and societal decisions.
- Our graduates will successfully contribute to the design, manufacture, implementation and management of engineering systems.
- Our graduates, equipped with strong engineering fundamentals, will have the flexibility and competence to adapt in a changing world.
- Our graduates will be innovative, and able to develop and communicate ideas and solutions

## Accreditation

The program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org).

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## Bachelor of Science in Mechanical Engineering (B.S.M.E.)

A Major in Mechanical Engineering leading to the B.S.M.E. degree consists of a total of 126 credit hours.

## Degree Requirements

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- ECON 2101 Principles of Economics – Macro (3)  
or ECON 2102 Principles of Economics – Micro (3)
- LBST 110X The Arts & Society (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 221X Ethical and Cultural Critique (3)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

### Foundation Courses (24 credit hours)

- CHEM 1251 General Chemistry I (3)
- CHEM 1251L General Chemistry I Lab (1)
- MATH 1241 Calculus I (3)
- MATH 1242 Calculus II (3)
- MATH 2171 Differential Equations (3)
- MATH 2241 Calculus III (3)
- PHYS 2101 Physics for Science and Engineering I (3)
- PHYS 2101L Physics for Science and Engineering I Lab (1)
- PHYS 2102 Physics for Science and Engineering II (3)
- PHYS 2102L Physics for Science and Engineering II Lab (1)

### Major Courses (63 hours)

- ECGR 2161 Basic Electrical Engineering I (3)
- ENGR 1201 Introduction to Engineering Practices and Principles I (2)
- ENGR 1202 Introduction to Engineering Practices and Principles II (2)
- ENGR 3295 Multidisciplinary Professional Development (1)
- MEGR 2141 Engineering Mechanics I (3)
- MEGR 2144 Introduction to Solid Mechanics (3)
- MEGR 2156 Design Projects I Lab (2)
- MEGR 2180 Manufacturing Systems (3)
- MEGR 2240 Computational Methods for Engineers (3)
- MEGR 3111 Thermodynamics I (3)
- MEGR 3112 Thermodynamics II (3)
- MEGR 3114 Fluid Mechanics (3)
- MEGR 3116 Introduction to Heat Transfer (3)
- MEGR 3121 Dynamic Systems I (3)
- MEGR 3122 Dynamic Systems II (3)
- MEGR 3152 Mechanics and Materials Lab (2) (W)
- MEGR 3156 Design Project Lab II (2)
- MEGR 3161 Introduction to Engineering Materials (3)
- MEGR 3171 Introduction to Measurements and Instrumentation (2)
- MEGR 3171L Instrumentation Lab (2) (W)

- MEGR 3216 Thermal/Fluids Design (3)
- MEGR 3221 Machine Analysis and Design I (3)
- MEGR 3251 Thermals/Fluids Lab (2) (W)
- MEGR 3255 Senior Design I (2)
- MEGR 3256 Senior Design II (2) (O)

### Restricted Elective Courses (18 credit hours)

#### Science Elective Course (3 credit hours)

Select one of the following:

- BIOL 1110 Principles of Biology I (3)
- CHEM 1252 General Chemistry II (3)
- GEOL 1200 Physical Geology (3)
- PHYS 1130 Introduction to Astronomy (3)

#### Math Elective Course (3 credit hours)

All MEGR students are required to complete: a) a math elective and b) a course with appropriate statistics content. Two options are available:

*Option 1:*

- STAT 3128 Probability and Statistics for Engineers (3)

*Option 2:*

- MEGR 3282 Statistical Process Control and Metrology (3) (which counts as one technical elective), and
- MATH 2164 Matrices and Linear Algebra (3)  
or MATH 3171 Applied Mathematics (3) (the math elective will not also count as a technical elective)

#### Mechanical Engineering Technical Elective Courses (12 credit hours)

Select four 3-credit courses from a list of approved Technical Electives available from the Department of Mechanical Engineering and Engineering Science.

**Degree Total = 126 credit hours**

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Science in Mechanical Engineering (B.S.M.E.) with Concentration in Biomedical Engineering

The B.S.M.E. with a Concentration in Biomedical Engineering program is intended for students interested in specialized and systematic training and education in the area of Biomedical Engineering. Students completing the requirements described in this program receive a special designation on their transcripts showing that they have completed the Concentration in Biomedical Engineering.

### Additional Admission Requirements

Students may apply for admission and may enter the program during their Freshman year, but must maintain an overall GPA of 3.0 to remain in the concentration beyond the Freshman year.

### Degree Requirements

A Major in Mechanical Engineering with a Concentration in Biomedical Engineering consists of a total of 127 credit hours.

### General Education Courses (21 credit hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

- ECON 2101 Principles of Economics – Macro (3)  
or ECON 2102 Principles of Economics – Micro (3)
- LBST 110X The Arts & Society (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 221X Ethical and Cultural Critique (3)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

### Foundation Courses (24 credit hours)

- CHEM 1251 General Chemistry I (3)
- CHEM 1251L General Chemistry I Lab (1)
- MATH 1241 Calculus I (3)
- MATH 1242 Calculus II (3)
- MATH 2171 Differential Equations (3)
- MATH 2241 Calculus III (3)
- PHYS 2101 Physics for Science and Engineering I (3)
- PHYS 2101L Physics for Science and Engineering I Lab (1)
- PHYS 2102 Physics for Science and Engineering II (3)
- PHYS 2102L Physics for Science and Engineering II Lab (1)

### Major Courses (64 credit hours)

- ECGR 2161 Basic Electrical Engineering I (3)
- ENGR 1201 Introduction to Engineering Practices and Principles I (2)
- ENGR 1202 Introduction to Engineering Practices and Principles II (2)
- ENGR 3295 Multidisciplinary Professional Development (1)
- MEGR 2141 Engineering Mechanics I (3)
- MEGR 2144 Solid Mechanics (3)
- MEGR 2156 Design Projects Lab I (2)
- MEGR 2180 Manufacturing Systems (3)
- MEGR 2240 Computational Methods (3)
- MEGR 2279 Introduction to Biomedical Engineering (1)
- MEGR 3111 Thermodynamics I (3)
- MEGR 3112 Thermodynamics II (3)
- MEGR 3114 Fluid Mechanics (3)
- MEGR 3116 Heat Transfer (3)
- MEGR 3121 Dynamic Systems I (3)
- MEGR 3122 Dynamic Systems II (3)
- MEGR 3152 Mechanics and Materials Lab (2)
- MEGR 3156 Design Project Lab II (2)
- MEGR 3161 Engineering Materials (3)
- MEGR 3171 Measurements and Instrumentation (2)
- MEGR 3171L Instrumentation Lab (2)
- MEGR 3216 Thermal/Fluids Design (3)
- MEGR 3221 Machine Analysis and Design (3)
- MEGR 3251 Thermal/Fluids Lab (2)
- MEGR 3275 Biomedical Engineering Senior Design I (2)\*
- MEGR 3276 Biomedical Engineering Senior Design II (2)\*

*\*Must be an approved Biomedical Engineering-related project.*

### Restricted Elective Courses (18 credit hours)

#### Science Elective Course (3 credit hours)

Select one of the following:

- BIOL 1110 Principles of Biology I (3)
- BIOL 2120 General Biology I (3)

#### Math Elective Course (3 credit hours)

- STAT 3128 Probability and Statistics for Engineers (3)

#### Biomedical Engineering Technical Elective Courses (12 credit hours)

Select four 3-credit hour courses from a list of approved Biomedical Engineering Technical Electives available from the Department of Mechanical Engineering and Engineering Science.

### Degree Total = 127 credit hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of

Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Bachelor of Science in Mechanical Engineering (B.S.M.E.) with Concentration in Energy Engineering

The B.S.M.E. with a Concentration in Energy Engineering program is intended for students interested in specialized and systematic training and education in the area of power generation. Students completing the requirements described in this program receive a special designation on their transcripts showing that they have completed the Concentration in Energy Engineering.

### Additional Admission Requirements

Students must apply for admission and may enter the program during their Sophomore or Junior years only. To be admitted to the program, students must have completed PHYS 2101, PHYS 2101L, MATH 1242, ENGR 1202, UWRT 1102 (or UWRT 1103) and MEGR 2141, all with grades of C or above and have a minimum GPA of 3.0. In order to remain in the concentration a minimum (overall and program) GPA of 3.0 must be maintained.

### Degree Requirements

A Major in Mechanical Engineering with a Concentration in Energy Engineering consists of a total of 127 credit hours.

### General Education Courses (21 hours)

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

ECON 2101 Principles of Economics – Macro (3)  
or ECON 2102 Principles of Economics – Micro (3)  
LBST 110X The Arts & Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)  
LBST 221X Ethical and Cultural Critique (3)  
UWRT 1101 Writing and Inquiry in Academic Contexts I (3)  
UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

### Foundation Courses (24 hours)

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)

PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)  
PHYS 2102 Physics for Science and Engineering II (3)  
PHYS 2102L Physics for Science and Engineering II Lab (1)

### Major Courses (64 hours)

ECGR 2161 Basic Electrical Engineering I (3)  
ENGR 1201 Introduction to Engineering Practices and Principles I (2)  
ENGR 1202 Introduction to Engineering Practices and Principles II (2)  
ENGR 3295 Multidisciplinary Professional Development (1)  
MEGR 2141 Engineering Mechanics I (3)  
MEGR 2144 Solid Mechanics (3)  
MEGR 2156 Design Projects Lab I (2)  
MEGR 2180 Manufacturing Systems (3)  
MEGR 2240 Computational Methods (3)  
MEGR 2499 Introduction to Energy Engineering (1)  
MEGR 3111 Thermodynamics I (3)  
MEGR 3112 Thermodynamics II (3)  
MEGR 3114 Fluid Mechanics (3)  
MEGR 3116 Heat Transfer (3)  
MEGR 3121 Dynamic Systems I (3)  
MEGR 3122 Dynamic Systems II (3)  
MEGR 3152 Mechanics and Materials Lab (2)  
MEGR 3156 Design Project Lab II (2)  
MEGR 3161 Engineering Materials (3)  
MEGR 3171 Measurements and Instrumentation (2)  
MEGR 3171L Instrumentation Lab (2)  
MEGR 3216 Thermal/Fluids Design (3)  
MEGR 3221 Machine Analysis and Design (3)  
MEGR 3251 Thermal/Fluids Lab (2)  
MEGR 3455 Energy Senior Design I (2)\*  
MEGR 3456 Energy Senior Design II (2)\*

*\*Must be an approved Energy-related project.*

### Restricted Elective Courses (18 credit hours)

#### Science Elective Course (3 credit hours)

Select one of the following:

BIOL 1110 Principles of Biology I (3)  
CHEM 1252 General Chemistry II (3)  
GEOL 1200 Physical Geology (3)  
PHYS 1130 Introduction to Astronomy (3)

#### Mathematics and Statistics Elective Course (3 credit hours)

All MEGR students are required to complete: a) a math elective and b) a course with appropriate statistics content. Two options are available:

*Option 1:*  
STAT 3128 Probability and Statistics for Engineers (3)

*Option 2:*

MEGR 3282 *Statistical Process Control and Metrology* (3) (which counts as one Energy Technical Elective), and

MATH 2164 *Matrices and Linear Algebra* (3) or MATH 3171 *Applied Mathematics* (3) (the math elective will not also count as a technical elective)

### **Energy Technical Elective Courses (12 credit hours)**

Select four 3-credit hour courses from a list of approved Energy Technical Electives available from the Department of Mechanical Engineering and Engineering Science.

**Degree Total = 127 credit hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## **Bachelor of Science in Mechanical Engineering (B.S.M.E.) with Concentration in Motorsports Engineering**

The B.S.M.E. with a Concentration in Motorsports Engineering program is intended for students interested in specialized and systematic training and education in the area of automotive engineering as it pertains to motorsports. Students completing the requirements described in this program will receive a special designation on their transcripts showing that they have completed the Motorsports Engineering concentration.



### **Additional Admission Requirements**

Students must apply for admission and may enter the program during the Sophomore or Junior years only. To be admitted to the program, students must have completed PHYS 2101, PHYS 2101L, MATH 1242, ENGR 1202, and UWRT 1102 (or UWRT 1103), all with grades of C or above and have a minimum GPA of 2.5.

### **Degree Requirements**

A Major in Mechanical Engineering with a

Concentration in Motorsports Engineering consists of a total of 127 credit hours.

### **General Education Courses (21 credit hours)**

For details on required courses, refer to the General Education program. Students in this major should plan on taking the following courses that meet general education and major requirements.

ECON 2101 Principles of Economics – Macro (3)  
or ECON 2102 Principles of Economics – Micro (3)  
LBST 110X The Arts & Society (3)  
LBST 2101 Western Cultural and Historical Awareness (3)  
LBST 2102 Global and Intercultural Connections (3)  
LBST 221X Ethical and Cultural Critique (3)  
UWRT 1101 Writing and Inquiry in Academic Contexts I (3)  
UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

### **Foundation Courses (24 credit hours)**

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)  
PHYS 2102 Physics for Science and Engineering II (3)  
PHYS 2102L Physics for Science and Engineering II Lab (1)

### **Major Courses (64 credit hours)**

ECGR 2161 Basic Electrical Engineering (3)  
ENGR 1201 Introduction to Engineering Practices and Principles I (2)  
ENGR 1202 Introduction to Engineering Practices and Principles II (2)  
ENGR 3295 Multidisciplinary Professional Development (1)  
MEGR 2141 Engineering Mechanics I (3)  
MEGR 2144 Introduction to Solid Mechanics (3)  
MEGR 2156 Design Project Lab I (2)  
MEGR 2180 Manufacturing Systems (3)  
MEGR 2240 Computational Methods (3)  
MEGR 2299 Introduction to Motorsports Engineering (1)  
MEGR 3111 Thermodynamics I (3)  
MEGR 3112 Thermodynamics II (3)  
MEGR 3114 Fluid Mechanics (3)  
MEGR 3116 Introduction to Heat Transfer (3)  
MEGR 3121 Dynamic Systems I (3)  
MEGR 3122 Dynamic Systems II (3)  
MEGR 3152 Mechanics and Materials Lab (2) (W)  
MEGR 3156 Design Project Lab II (2)

MEGR 3161 Engineering Materials (3)  
 MEGR 3171 Measurements and Instrumentation (2)  
 MEGR 3171L Instrumentation Lab (2) (W)  
 MEGR 3216 Thermal/Fluids Design (3)  
 MEGR 3221 Machine Analysis and Design (3)  
 MEGR 3251 Thermal/Fluids Lab (2) (W)  
 MEGR 3355 Motorsports Senior Design I (2)  
 MEGR 3356 Motorsports Senior Design II (2)

**Restricted Elective Courses (18 credit hours)**  
**Science Elective Course (3 credit hours)**

Select one of the following:

BIOL 1110 Principles of Biology I (3)  
 CHEM 1252 General Chemistry II (3)  
 GEOL 1200 Physical Geology (3)  
 PHYS 1130 Introduction to Astronomy (3)

**Mathematics and Statistics Elective Course (3 credit hours)**

All MEGR students are required to complete: a) a math elective and b) a course with appropriate statistics content. Two options are available:

*Option 1:*

STAT 3128 Probability and Statistics for Engineers (3)

*Option 2:*

MEGR 3282 Statistical Process Control and Metrology (3) (which counts as one Energy Technical Elective), and

MATH 2164 Matrices and Linear Algebra (3) or MATH 3171 Applied Mathematics (3) (the math elective will not also count as a technical elective)

**Motorsports Technical Elective Courses (12 credit hours)**

Select four 3-credit hour courses from a list of approved Motorsports Technical Electives available from the Department of Mechanical Engineering and Engineering Science.

**Degree Total = 127 credit hours**

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).




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## B.S. in Mechanical Engineering and Physics Dual Degree

The Department of Mechanical Engineering and Engineering Science offers a dual degree opportunity with the Department of Physics and Optical Science. The dual degree is designed to broaden and enhance the education of students in the engineering degree program. Students can obtain a B.S. in Mechanical Engineering and B.S. in Physics dual degree.

To obtain a dual B.S. degree in both Mechanical Engineering and Physics, undergraduate students must complete all requirements for the B.S.M.E. degree (listed above) as established by the Department of Mechanical Engineering and Engineering Science. In addition, students must complete 12 hours of upper-division PHYS courses specified by the Department of Physics and Optical Science. A B.S. in Physics under this program will be awarded at the same time as the B.S.M.E. The B.S. Physics degree will not be awarded in advance of the engineering degree.

**Additional Required Courses (12 hours)**

PHYS 3141 Introduction to Modern Physics (3)  
 PHYS 4231 Electromagnetic Theory I (3)  
 PHYS 4241 Quantum Mechanics I (3)  
 PHYS 3xxx or PHYS 4xxx Elective (3)\*

*\*A list of approved PHYS Electives is available from the Department of Physics and Optical Science.*

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Early Entry: Master of Science in Mechanical Engineering

Students may be accepted into the Early Entry Program at any time after completion of 90 credit hours of undergraduate work applicable to the B.S.M.E. degree. Admission must be approved by the Department Chair or Graduate Program Coordinator, and admission is conditional pending the awarding of the undergraduate degree.

In order to be accepted to the Mechanical Engineering Early Entry Program, undergraduate students must have at least a 3.2 overall GPA and a 3.2 GPA in the major. Additionally, applicants must have taken the appropriate graduate standardized test (GRE) and received acceptable test scores.

Students accepted into the Early Entry Program are subject to the same policies that pertain to other matriculated graduate students. Early Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.



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# Department of Systems Engineering and Engineering Management

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<http://seem.uncc.edu>

The main objective of the Department of Systems Engineering and Engineering Management is to equip graduates with the essential Systems Engineering skills that are needed in industry to enable them to perform in a global engineering environment. These skills include:

- Decision and Risk Analysis
- Systems Modeling and Optimization
- Systems Design, Planning, and Analysis
- Supply Chain and Logistics Engineering
- Quality Engineering
- Engineering Management
- Energy Systems Design and Planning
- Communication and Presentation
- Understanding of Global Business Dynamics

These objectives are accomplished through a flexible curriculum and through interactions with other departments and colleges of the University and with the professional community.

*"Systems Engineering is an engineering discipline whose responsibility is creating and executing an interdisciplinary process to ensure that the customers' and stakeholders' needs are satisfied in a high quality, trustworthy, cost-efficient and schedule-compliant manner throughout a system's entire life cycle."  
(INCOSE, 2007)*

Systems Engineering as an engineering field has very broad applications in a wide variety of industries including energy, telecommunications, construction, manufacturing, transportation and distribution, information technology, financial services, automotive, retail, healthcare and airlines, at all levels from an entry position to top management. This wide applicability, along with a very strong focus to model, analyze and manage complex engineered systems with proven tools and techniques are the primary strengths of SE. Practically every organization requires Systems

Engineers to identify, characterize, and solve the right problems and to eliminate inefficiencies and root-causes that generate these problems.

The department offers a Bachelor of Science in Systems Engineering (BSSE) degree and a Master of Science in Engineering Management (MSEM) degree. For information about the master's program, see the *UNC Charlotte Graduate Catalog*.

Concentration tracks and technical and liberal studies electives allow flexibility for study in specific areas. Each student may design a technical elective program with his or her advisor's approval in order to achieve individual goals and follow a desired track.

Qualified students may apply for Early Entry into the graduate program in Engineering Management during their Junior or Senior year. If accepted, students may take optional courses for graduate credit and begin work on their master's degree while completing their undergraduate degree.



## Bachelor of Science in Systems Engineering (B.S.S.E.)

### Degree Requirements

A Major in Systems Engineering leading to the BSSE degree consists of 123 credit hours.

#### General Education Courses (35 credit hours)

- CHEM 1251 General Chemistry I (3)
- CHEM 1251L General Chemistry I Lab (1)
- ECON 1101 Economics of Social Issues (3)
- LBST 110x The Arts and Society (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 221x Ethical Issues and Cultural Critique (3)
- MATH 1241 Calculus I (3)
- MATH 1242 Calculus II (3)

- PHYS 2101 Physics for Science and Engineering I (3)
- PHYS 2101L Physics for Science and Engineering I Lab (1)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

#### Major Courses (37 credit hours)

- SEGR 2101 Systems Engineering Concepts (3)
- SEGR 2105 Computational Methods for Systems Engineering I (3)
- SEGR 2106 Engineering Economics Analysis (3)
- SEGR 3101 System Design and Deployment (3)
- SEGR 3102 Systems Stimulation, Modeling, and Analysis (3)
- SEGR 3105 Computational Methods for Systems Engineering II (3)
- SEGR 3107 Decision and Risk Analysis (3)
- SEGR 3111 Project Management (3) (O, W)
- SEGR 3114 Production Control Systems (3)
- SEGR 3290 Systems Design Project I (1) (O, W)
- SEGR 3291 Systems Design Project II (3) (O, W)
- SEGR 3670 Total Quality Systems (3)
- SEGR 4141 Engineering Experimental Design (3)

#### Related Courses (27 credit hours)

- ENGR 1201 Introduction to Engineering Practices and Principles I (2)
- ENGR 1202 Introduction to Engineering Practices and Principles II (2)
- ENGR 3295 Multidisciplinary Professional Development (1)
- MATH 2164 Matrices and Linear Algebra (3)
- MATH 2171 Differential Equations (3)
- MATH 2241 Calculus III (3)
- OPRS 3111 Operations Research: Deterministic Models (3)
- OPRS 3113 Operations Research: Probabilistic Models (3)
- PHYS 2102 Physics for Science and Engineering II (3)
- PHYS 2102L Physics for Science and Engineering II Lab (1)
- STAT 3128 Probability and Statistics for Engineers (3)

#### Restricted Elective Courses (12 credit hours)

##### **Science Elective Course (3 credit hours)**

The science elective must be chosen from an approved list of physical, life, or earth sciences and must complement the student's overall educational plan.

##### **Technical Elective Courses (9 credit hours)**

Select three 3-credit hour courses from a list of approved Technical Electives available from the Department of Systems Engineering and Engineering Management.

### Concentration Courses (12 credit hours)

BSSE students can select one of the following optional concentrations areas by the end of their Sophomore year. Students who are not enrolled in a concentration can take any four of the Systems Engineering Technical Elective courses to fulfill their BSSE degree requirements.

#### ***Concentration in Engineering Management***

SEGR 2111 Introduction to Engineering Management (3)  
SEGR 3112 Value Engineering Management (3)  
SEGR 4150 Leadership Skills for Engineers (3)

*Plus select one of the following:*

OPER 3100 Operations Management (3)  
OPER 3204 Management of Service Operations (3)  
OPER 3208 Supply Chain Management (3)

#### ***Concentration in Energy Systems***

SEGR 4961 Introduction to Energy Systems (3)  
SEGR 4962 Energy Markets (3)  
SEGR 4963 Energy Systems Planning (3)  
SEGR 4964 Case Studies in the Energy Industry (3)

### Degree Total = 123 credit hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Early Entry: Master of Science in Engineering Management

Students may be accepted into the Early Entry Program for the M.S. in Engineering Management at any time after completion of at least 75 credit hours of undergraduate work applicable to an appropriate degree. Admission must be approved by the Department of Systems Engineering and Engineering Management. Full admission to the graduate program is conditional pending the awarding of the

undergraduate degree.

In order to be accepted into the Early Entry Program, students must have at least a 3.2 overall GPA and a 3.2 GPA in their major. Successful applicants must have taken the appropriate standardized test and earned acceptable scores.

While in the Early Entry Program, students must maintain a 3.0 overall GPA through completion of the baccalaureate degree in order to remain in the graduate program.

Students accepted into the Early Entry Program are subject to the same policies that pertain to other matriculated graduate students. Early Entry students must finish their undergraduate degree before they complete 15 hours of graduate work.

See the *UNC Charlotte Graduate Catalog* for details on the M.S. in Engineering Management program.

# *College of* Health and Human Services



# College of Health and Human Services

<http://health.uncc.edu>

The College of Health and Human Services (CHHS) offers professionally recognized and accessible undergraduate and graduate degree programs that are nationally and globally relevant, and responsive to changing health care and human service needs in the state and region. The College achieves excellence through informed and effective teaching in its degree programs, community partnerships, and professional activities and research to advance science and practice in the health and human services professions.



The College of Health and Human Services consists of these schools/departments:

- **Department of Kinesiology**
- **School of Nursing**
- **Department of Public Health Sciences**
- **School of Social Work**

## Degree Programs

### Major Programs

- Bachelor of Science in Athletic Training (B.S.)
- Bachelor of Science in Exercise Science (B.S.)
- Bachelor of Science in Neurodiagnostics and Sleep Science (B.S.)
- Bachelor of Science in Nursing (B.S.N.)
- Bachelor of Science in Public Health (B.S.P.H.)
- Bachelor of Science in Respiratory Therapy (B.S.R.T.)
- Bachelor of Social Work (B.S.W.)

### Minor Programs

- Outdoor Adventure Leadership
- Public Health

### Accreditation

The baccalaureate and master's programs in the School of Nursing are accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, 202-887-6791. The BSN program is approved by the North Carolina Board of Nursing. The Nursing Anesthesia program is accredited by the Council on Accreditation of Nurse Anesthesia Education Programs (COA). The Bachelor of Athletic Training program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The Bachelor of Science in Exercise Science, the Bachelor of Science in Neurodiagnostic and Sleep Science, and the Clinical Exercise Physiology concentration within the Master of Science in Kinesiology programs are accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The Master of Health Administration program is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME). The Public Health Programs (BSPH and MSPH) in the Department of Public Health Sciences are accredited by the Council on Education for Public Health (CEPH). Both the Bachelor of Social Work (B.S.W.) and the Master of Social Work (M.S.W.) are accredited by the Council on Social Work Education (CSWE). The Doctor in Nursing Practice program is seeking accreditation by the Commission on Collegiate Nursing Education (CCNE).

### Technical Standards

Technical standards define the attributes that are considered necessary for nursing and students enrolled in the BS degree program in Athletic Training to possess in order to complete their education and training, and subsequently enter clinical practice. These technical standards are prerequisites for entrance to, continuation in, and graduation from a student's chosen program in the College of Health and Human Services at the University of North Carolina at Charlotte.

Students must possess aptitude, ability, and skills in four areas: Psychomotor (coordination/mobility); Senses (visual,

auditory, tactile, olfactory); Communication (verbal, nonverbal, written); and Behavioral/Social Attributes.

The technical standards described by the student's chosen program are critically important to the student and must be performed by the student. Contact specific programs for detailed technical standards. Documentation of any disability is accomplished through the University Office of Disability Services.

### **Foreign Language Requirement**

There is no foreign language requirement for undergraduate students enrolled as majors within the College of Health and Human Services, although it is highly recommended for students to become proficient in a second language.

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# Department of Kinesiology

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<http://kinesiology.uncc.edu>

Kinesiology is the discipline that engages in the comprehensive study of human movement, where this knowledge is applied to a wide range of human performance areas and allied healthcare.

## Degree Programs

Opportunities in the Department of Kinesiology include a Bachelor of Science degree in Exercise Science, Bachelor of Science degree in Athletic Training, Bachelor of Science in Neurodiagnostics and Sleep Science, Bachelor of Science degree in Respiratory Therapy, Master of Science in Kinesiology, a Minor in Outdoor Adventure Leadership, and multiple courses emphasizing Lifetime Physical Activity and Physical Fitness.



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## Pre-Kinesiology

The Pre-Kinesiology major is the classification that indicates that students are in a preparatory program for either the Athletic Training major or the Exercise Science major. Personal health enhancement opportunities are available through Lifetime Physical Activity and Physical Fitness courses.

Applicants who satisfy freshman or transfer requirements for admission to the University and who apply to either the Athletic Training OR Exercise Science majors are eligible for admission to the Pre-Kinesiology major. All students entering the university will be required to complete the General Education requirements of the University. A suggested sequence of courses for Pre-Kinesiology students that meet these General Education requirements as well as the prerequisites for both Exercise Science and Athletic Training can be found online at [kinesiology.uncc.edu](http://kinesiology.uncc.edu).

Students who apply for either the Athletic Training OR Exercise Science major are initially classified as Pre-Kinesiology majors (PKNS) until they meet the following requirements: cumulative GPA of 2.5 or above; completion of 36 hours; and successful (grade C or above) completion of KNES 2168 and KNES 2168L (or equivalents), CHEM 1200, CHEM 1251, CHEM 1251L, MATH 1101, STAT 1222, KNES 2150, and KNES

2294. Students applying for the Athletic Training or Exercise Science major must make a grade C or above in the required courses and have a cumulative GPA of 2.5 or above before making application to either major. All of the required courses may be attempted twice. Withdrawing from a course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade. Students must receive a grade of C or above in all pre- and corequisite courses in order to be deemed successful. All KNES courses taken at UNC Charlotte required for any degree program in the Department of Kinesiology must be successfully completed at UNC Charlotte.

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## Bachelor of Science in Athletic Training

The Athletic Training major prepares students for national certification and licensure as a certified athletic trainer with career opportunities in high schools, colleges/universities, orthopedic and sports medicine clinics, business and industry, professional sports teams, government health agencies, branches of the US military, and research laboratories.

The emphases of the curriculum are: evidence based practice, risk management and injury prevention, pathology of injuries and illnesses, acute care of injuries and illnesses, pharmacology, therapeutic modalities, therapeutic exercise, general medical conditions and disabilities, nutritional aspects of injuries and illnesses, psychosocial intervention and referral, health care administration, and professional development and responsibilities. Students are given opportunities to gain knowledge and skills needed to pass the certification exam of the Board of Certification (BOC) for Athletic Training.



## Additional Admission Requirements

Students who have completed all of the Pre-Kinesiology prerequisites may apply for the Athletic Training major. Students are admitted to the major for the spring

semester only and admission is competitive. Admission decisions are made by a committee within the Department of Kinesiology. Selection into the program is competitive and satisfactorily completing the minimum requirements does not guarantee program admission. After evaluating the credentials of all applicants meeting the minimum academic requirements, the selection committee offers admission to students whose credentials demonstrate the highest level of academic achievement.

The Athletic Training Education Program is a rigorous and intense program that places specific requirements and demands on the students enrolled in the program. Examples of these requirements include: the ability to meet the technical standards of the program, current immunizations, drug testing and criminal background clearance, universal precaution training, clinical experiences, and successful completion of progression criteria.

Students applying for admission to the Athletic Training major must meet the following minimum academic requirements.

- Cumulative GPA of 2.5 or above in all college coursework
- Completion of 36 hours
- Successful completion (grade of C or above) in all Foundation Courses
- Proof of current CPR for the Professional Rescuer with AED (or equivalent) certification
- Completion of the Athletic Training Education Program Application Packet
- Completion of all athletic training major prerequisites in the fall semester prior to the spring for which application is being made
- Completion of athletic training observation experience in the fall semester prior to the spring for which application is being made

### Degree Requirements

The B.S. in Athletic Training requires 120 credit hours. A detailed description of the requirements of the program can be found in the *B.S. in Athletic Training Student Handbook* located in the Department of Kinesiology and online at [kinesiology.uncc.edu](http://kinesiology.uncc.edu) under "Student Resources."

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foundation Courses (20 credit hours)

- KNES 2168 Human Anatomy and Physiology for the Health Professions (3)
- KNES 2168L Human Anatomy and Physiology Laboratory for the Health Professions (1)
- KNES 2150 Introduction to Kinesiology (3)

- KNES 2294 Care and Prevention of Athletic Injuries (3)
- CHEM 1200 Fundamentals of Chemistry (3)
- CHEM 1251 General Chemistry I (3)
- CHEM 1251L General Chemistry I Laboratory (1)
- STAT 1220 Elements of Statistics I (BUSN) (3)  
or STAT 1221 Elements of Statistics I (3)  
or STAT 1222 Introduction to Statistics (3)

### Major Courses (61 credit hours)

- KNES 2169 Human Anatomy and Physiology for the Health Professions II (3)
- KNES 2169L Human Anatomy and Physiology Laboratory II for the Health Professions (1)
- KNES 2290 Emergency Medical Response (3)
- KNES 2295 Care and Prevention of Athletic Injuries Laboratory (1)
- KNES 2296 Evidence-Based Practice (3)
- KNES 2298 Applied Kinesiology (3)
- KNES 3260 Nutrition for the Physically Active (3)
- KNES 3280 Exercise Physiology: Foundation and Theory (3)
- KNES 3286 Exercise Testing: Foundation and Theory (3)
- KNES 3288 Upper Body Injury Evaluation (3)
- KNES 3289 Upper Body Injury Evaluation Laboratory (1)
- KNES 3290 Lower Body Injury Evaluation (3)
- KNES 3291 Therapeutic Modalities (3)
- KNES 3292 Therapeutic Modalities Laboratory (1)
- KNES 3293 General Medical and Psychosocial Aspects of Athletic Training (3)
- KNES 3295 Lower Body Injury Evaluation Laboratory (1)
- KNES 3298 Therapeutic Exercise Foundations (3)
- KNES 3400 Athletic Training Clinical I (2)
- KNES 3401 Athletic Training Clinical II (2)
- KNES 4121 Pharmacology for the Physically Active (3)
- KNES 4290 Therapeutic Exercise (3) (W)
- KNES 4292 Organization and Administration of Athletic Training (3) (O) (W)
- KNES 4293 Biomechanics (3)
- KNES 4400 Athletic Training Clinical III (2)
- KNES 4401 Athletic Training Clinical IV (2)

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

All courses required for the Athletic Training major must be completed with a grade of C or above. All of the required courses may be attempted twice. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade. All pre- or corequisite courses must be of a grade of C or above in order to be deemed

successful. Students who earn two D or lower grades in the aforementioned courses will be removed from the Athletic Training program.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Science in Exercise Science

The Exercise Science major offers preparation for employment as Exercise Science practitioners in business and industry, healthcare agencies, hospitals, physical fitness centers, sport medicine clinics, sports performance centers, and colleges/universities or any other setting which utilizes exercise and physical activity to promote healthy active lifestyles and outcomes.



This degree program offers preparation for employment as Exercise Science practitioners in: health agencies, hospitals, fitness centers, business and industry, research laboratories, or any other setting which provides physical fitness enhancement programs for

clients and patients. The courses in this major prepare the student to sit for the American College of Sports Medicine Health Fitness Specialist certification. The Exercise Science program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

### Additional Admission Requirements

Minimum criteria for application to the Exercise Science major are:

- A GPA of 2.5 or above
- A grade of C or above in the required Foundation Courses

Students can be admitted to the Exercise Science major in either the Fall or Spring semester, and admission is competitive. Admission decisions are made by the Coordinator of the Exercise Science major within the Department of Kinesiology. Selection into the program is based on the satisfactory completion of the minimum requirements but does not guarantee program admission. After evaluating the credentials of all applicants meeting the minimum academic requirements, the Coordinator of the Exercise Science major will make offers for admission to students whose credentials demonstrate the highest level of academic achievement.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Foundation Courses (20 credit hours)

- KNES 2150 Introduction to Kinesiology (3)\*
- KNES 2168 Human Anatomy and Physiology for the Health Professions (3)
- KNES 2168L Human Anatomy and Physiology Laboratory for the Health Professions (1)
- KNES 2294 Care and Prevention of Athletic Injuries (3)\*
- CHEM 1200 Fundamentals of Chemistry (3)\*\*
- CHEM 1251 General Chemistry I (3)
- CHEM 1251L General Chemistry I Laboratory (1)
- STAT 1220 Elements of Statistics I (BUSN) (3)\*  
or STAT 1221 Elements of Statistics I (3)\*  
or STAT 1222 Introduction to Statistics (3)\*

*\*KNES 2150; KNES 2294; and STAT 1220, STAT 1221, or STAT 1222 are recommended to be completed before entering the major but are not necessary to make application; however, the courses do need to be completed before registering for KNES 4490.*

*\*\*Students transferring to UNC Charlotte with credit for CHEM 1251 and CHEM 1251L are not required to take CHEM 1200.*

### Major Courses (54-63 credit hours)

- KNES 2101 Foundation of Physical Conditioning (2)
- KNES 2169 Human Anatomy and Physiology for the Health Professions II (3)
- KNES 2169L Human Anatomy and Physiology Laboratory II for the Health Professions (1)
- KNES 2290 Emergency Medical Response (3)
- KNES 2298 Applied Kinesiology (3)
- KNES 3100 Organization and Administration of Exercise Science (3)
- KNES 3260 Nutrition for the Physically Active (3)
- KNES 3280 Exercise Physiology: Foundation and Theory (3)
- KNES 3281 Exercise Physiology: Principles and Application (3) (W)
- KNES 3285 Principles of Strength and Conditioning (3)
- KNES 3286 Exercise Testing: Foundation and Theory (3)
- KNES 3287 Exercise Testing: Principles and Applications (3) (O, W)
- KNES 4121 Pharmacology for the Physically Active (3)
- KNES 4132 Lifetime Weight Management and Behavior Change (3)
- KNES 4286 Exercise Prescription (3)
- KNES 4293 Biomechanics (3)
- KNES 4490 Exercise Science Senior Internship (6-15)
- KNES 4660 Practitioner Seminar (3)

### Concentration Courses (15-16 hours)

Students must also complete 15-16 hours of coursework in a specific concentration of study. The concentrations are designed to provide students with the opportunity to pursue more extensive study in exercise science context most relevant to their professional and social goals. Two concentrations of study are offered:

#### 1) Aquatics Leadership Concentration (minimum 15 hours)

- KNES 2212 Lifeguard Training (3)
- KNES 2213 Water Safety Instructor (3)
- KNES 2219 Scuba Diving and Lab (3)
- KNES 2220 Advanced Scuba Diving (1)
- KNES 4490 Exercise Science Senior Internship (9)\*

*\*The internship is taken during the Senior year and must be 100% involved in aquatics.*

#### Outside Certifications

Student must complete one of the following:

- American Red Cross Lifeguard Instructor
- American Red Cross Lifeguard Management

- American Red Cross Safety Training for Swim Coaches

Students must have and maintain a 2.5 GPA or above for the Aquatics Leadership concentration.

#### 2) Strength and Conditioning Concentration (minimum 16 hours)

- KNES 1202 Weight Training (1)
- KNES 1263 Body Shaping (1)
- KNES 3285L Principles of Strength and Conditioning Lab (1)
- PHYS 1101 Introductory Physics I (3)
- PHYS 1101L Introductory Physics I Laboratory (1)
- KNES 4490 Exercise Science Senior Internship (9)\*

*\*The internship is taken during the Senior year and must be 100% involved in strength and conditioning.*

#### Outside Certifications

Students must complete the following:

- National Strength and Conditioning Association's Certified Strength and Conditioning Specialists (CSCS) Certification

Students must have and maintain a 3.0 GPA or above for the Strength and Conditioning concentration.

#### Elective Courses

Students must complete three activity courses of their choosing.

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours



#### Grade Requirements

All of the required courses for the Exercise Science major must be completed with a grade of C or above. All of the required courses may be attempted only twice. Withdrawing from a course after the Add/Drop

deadline constitutes an attempt, as does receiving any letter grade. Exercise Science majors having more than three grades of D or below in required upper-level courses cannot remain in the Exercise Science major and must change their major. Students must receive a grade of C or above in all pre- and corequisite courses in order to be deemed successful.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Science in Neurodiagnostics & Sleep Science**

The Neurodiagnostics and Sleep Science (NDSS) major allows current practitioners to continue their professional development, while learning new skills in an increasingly important and rapidly expanding segment of health science.

The emphasis of the curriculum is to enhance and advance the student's professional career in neurodiagnostics and sleep sciences with additional education skills in critical thinking and creative problem solving needed for key leadership, educational, and management positions. This degree program is offered online through the Office of Distance Education and the Department of Kinesiology in collaboration with the Department of Allied Health Sciences at UNC Chapel Hill. Students seeking admission into this program will already have earned their registry from Board of Registration of Polysomnographic Technologists (BRPT) and/or the American Board of Electroencephalographic and Evoked Potential Technologists (ABRET). The program culminates in a capstone experience that is developed around the students' specific professional interest area. The curriculum offers specific professional coursework in advanced methods and monitoring, program administration, and clinical outcomes evaluation.



### **Additional Admission Requirements**

Students seeking admission into this program that have earned their registry from the Board of Registration of Polysomnographic Technologists (BRPT) and/or the American Board of Electroencephalographic and Evoked Potential Technologists (ABRET) Sleep Technologists and Electroneurodiagnostic Technologists may apply for admission to the NDSS online degree program. Criteria for admission to the program are a current unencumbered registry as a RPSGT or R. EEG T., an earned Associate Degree with a cumulative GPA of 2.0 or above, and at least a C in all coursework taken by the end of the semester prior to the semester for which application is made.

Students must first apply for admission to the University, and then make a second application to the Department of Kinesiology. The final program admission decision is made by the Department of Kinesiology. Applicants are competitively reviewed for admission based on their application and cumulative GPA in all college transferable coursework. Satisfactorily completing the minimum requirements does not guarantee admission into the program. After evaluating the credentials of all applicants meeting the minimum academic requirements, the selection committee offers admission to students whose credentials demonstrate the highest level of academic achievement. Students are admitted in one cohort in the Fall semester, in which applications are accepted from November 15 to June 15. Students are accepted directly into the program as a NDSS major. Applications are available from the Office of Student Services in the College of Health and Human Services. Admission decisions are communicated in writing by the department. Applicants who are denied admission may reapply.

### **Degree Requirements**

#### **Transfer Credit (up to 64 credit hours)**

#### **General Education Courses (0 credit hours)**

For details on required courses, refer to the General Education program. Students with an acceptable AAS degree are granted a general education waiver, with the exception of the Writing Intensive (W) and Oral Communication (O) requirements satisfied within the NDSS major.

#### **Foundation Courses (up to 46 credit hours)**

Students will receive up to 46 credit hours through credit by examination after successfully completing NDSS 3101 with a grade of C or above. The difference between the number of credits transferred through the associate degree and those earned in the major will constitute the number of hours awarded by the credit by examination procedure.

### Major Courses (38 credit hours)

- NDSS 3101 Pathophysiology of Sleep, Neurological, and Related Disorders (3)  
NDSS 3102 Neurological and Sleep Diagnostic and Therapeutic Methods, and Monitoring Services (3)  
NDSS 3104 Advanced Sleep and Neurodiagnostic Clinical Procedures (3)  
NDSS 3405 Neurodiagnostics and Sleep Science Practicum (3)\*  
NDSS 4101 Principles and Practice of Healthcare Education (3)  
NDSS 4104 Advanced Physiological Monitoring and Data Acquisition (3)  
NDSS 4105 Leadership in Healthcare Organizations (3)  
NDSS 4406 Neurodiagnostics and Sleep Science Internship (3)  
NDSS 4107 Neurodiagnostics and Sleep Science Capstone (6)  
NURN 4201 Information Technology: Applications in Health Care (2)  
RESP 4102 Program Administration (3) (O)  
RESP 4103 Evidence-Based Practice in Respiratory Care (3) (W)

### Unrestricted Elective Courses

As needed.

### Drug Testing and Criminal Background Checks

Students in a professional program (i.e., a clinical practicum such as NDSS 3405) may be asked by a clinical facility to undergo drug testing and/or have a criminal background check before being allowed to participate in a clinical experience at that facility. Students are responsible for the cost of drug testing and criminal background checks. All NDSS students must meet the University's immunization and health status requirements.

### Degree Total = 120 Credit Hours

### Grade Requirements

For all required courses for the NDSS major, students must receive a grade of C or above to be considered successful.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Respiratory Therapy

The Respiratory Therapy major prepares students who area already national board-certified respiratory therapists in a program of study directed toward

acquiring advanced knowledge and clinical skills in respiratory therapy / respiratory care.

The emphasis of the curriculum is to enhance and advance the student's professional career in respiratory care with additional education in administration, research and evaluation, and advanced critical care. This degree program is offered completely online through the Office of Distance



Education and the Department of Kinesiology. Students seeking admission into this program will already be board-certified practicing Respiratory Therapists. The program culminates in a capstone experience that is developed around the students' specific professional interest area. The curriculum offers specific professional coursework in advanced critical care, advanced pharmacology, program administration, and clinical outcomes evaluation.

### Additional Admission Requirements

Registered Respiratory Therapists seeking a Bachelor of Science degree in Respiratory Therapy (BSRT) may apply for admission to BSRT online degree program. Criteria for admission to the program are:

- A current unencumbered license as a Registered Respiratory Therapist
- A cumulative GPA of 2.0 or above from an Associate Degree program that is a CoARC-accredited respiratory therapy program from a regionally accredited institution
- Grades of C or above in all coursework taken by the end of the semester prior to the semester for which application is made

Students must first apply for admission to the University, and then make a second application to the Department of Kinesiology. The final program admission decision is made by the Department of Kinesiology. *Applicants are competitively reviewed for admission based on their cumulative GPA in all college transferable coursework.* Satisfactorily completing the minimum requirements does not guarantee admission into the program. After evaluating the credentials of all applicants meeting the minimum academic requirements, the selection committee offers admission to students whose credentials demonstrate the highest level of academic achievement. Students are admitted in one cohort in the Fall semester, in which applications are accepted from November 15 to March

15. Students will be accepted directly into the program as a BSRT major. Applications are available from the Office of Student Services in the College of Health and Human Services. Admission decisions are communicated in writing by the Department. Applicants who are denied may reapply.



## Degree Requirements

Transfer Credit (64 credit hours)

General Education Courses (0 credit hours)

Foundation Courses (up to 46 credit hours)

Students may be awarded up to 46 credit hours by examination upon successful completion of RESP 3101. Students receive 12 credits by exam for having passed the RRT exam after completion of RESP 3101.

Major Courses (38 credit hours)

- RESP 3101 Professional Roles and Dimensions of Respiratory Therapy (3)
- RESP 3102 Outpatient Services in Respiratory Therapy (3)
- RESP 3103 Advanced Pharmacology in Respiratory Therapy (3)
- RESP 3105 Advanced Critical Care Monitoring (3)
- RESP 3204 Advanced Cardiopulmonary Physiology (3)
- RESP 4101 Program Design, Implementation, and Outcomes Evaluation (3)
- RESP 4102 Program Administration (3) (O)
- RESP 4103 Evidence-Based Practice in Respiratory Care (3) (W)
- RESP 4111 Respiratory Therapy Practicum (9)(W)
- RESP 4204 Advanced Critical Care Pathophysiology (3)
- NURN 4201 Information Technology: Applications in Health Care (2)

Restricted Elective Courses (6 credit hours)

Students are required to take two LBST courses unless they are in a pre-professional course of study, in which case those courses may be credited toward the elective

courses as approved by the BSRT Program Coordinator.

## Unrestricted Elective Courses

As needed.

## Drug Testing and Criminal Background Checks

Students in a professional program (i.e., a clinical practicum such as RESP 4111) may be asked by a clinical facility to undergo drug testing and/or have a criminal background check before being allowed to participate in a clinical experience at that facility. Students are responsible for the cost of drug testing and criminal background checks. All BSRT students must meet the University's immunization and health status requirements.

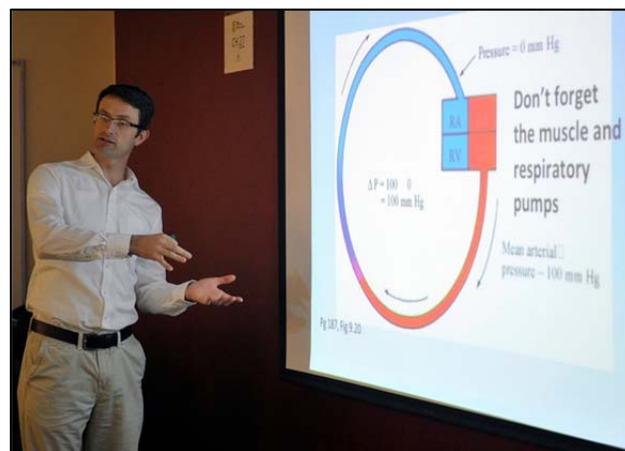
Degree Total = 120 Credit Hours

## Grade Requirements

For all required courses for the Respiratory Therapy major, students must receive a grade of C or above to be considered successful.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Honors Programs

Honors Programs are available for all majors within the Department of Kinesiology. The honors notation will appear on a student's official transcript.

## Admission Requirements

Students are eligible to participate in the Honors Program in their Sophomore or Junior year of study. Consideration for admission to the Honors Program may be initiated by the student or by any faculty member in the Department of Kinesiology.

To apply for admission, students must:

- 1) Have an overall GPA of 3.2 and a GPA of 3.5 in their respective major in the Department of Kinesiology.
- 2) Submit a typed statement (maximum length of 500 words) explaining:
  - a) What the student's academic/career goals are in their respective major within the Department of Kinesiology
  - b) How the Department of Kinesiology's Honors Program is relevant to the student's academic and/or career interests

The Department of Kinesiology Honors Program Committee reviews the materials of all eligible student applicants on an ad hoc basis and recommends to the Department of Kinesiology Chair those individuals who should be admitted into the program.

Students may be removed from the Honors Program at any time upon their own request or upon recommendation of the Honors Program Committee in consultation with the Department of Kinesiology Chair. There is no penalty for removal from the Honors Program.

### **Program Requirements**

To obtain Honors in their respective major in the Department of Kinesiology, students must:

- 1) Complete at least six (6) credit hours of Honors coursework (not including the thesis)
- 2) Complete at least three hours of KNES 4700 (Honors Thesis) with an A, which includes writing an honors thesis under the supervision of a single faculty member, and publicly presenting the results of that research to the department faculty
- 3) Explain, in writing, how their course of study in the department developed a focused inquiry into the student of a Kinesiology major (Athletic Training, Exercise Science, Neurodiagnostic and Sleep Sciences, or Respiratory Therapy) to the satisfaction of the Department of Kinesiology Honors Committee
- 4) Have a GPA of at least 3.2 for all coursework at UNC Charlotte and a GPA of at least 3.5 in their respective major in the Department of Kinesiology at UNC Charlotte
- 5) Comply with all procedural and substantial requirements established by the Honors Council and the Faculty Council for graduating with Honors in a department

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## **Minor in Outdoor Adventure Leadership**

The Minor in Outdoor Adventure Leadership is designed to allow students to acquire the knowledge, skills, and abilities to work (and recreate) in a variety of adventure activities, while fulfilling the requirements for one of the approved degree programs at the University. The courses that satisfy the minor are primarily housed within the Department of Kinesiology and represent different aspects of the outdoor adventure field.

The Minor in Kinesiology's Outdoor Adventure Leadership (KOAL) consists of a minimum of 18 credit hours of approved coursework, including, KNES 1231 (Introduction to Outdoor Adventure), KNES 3236 (Theory and Foundations of Adventure Education), KNES 4431 (Practicum in Outdoor Adventure Leadership), plus an "Intensive Experience" class (chosen from 3 options), an "Outdoor Leadership-based" class (chosen from 2 options), and approved electives.

The final practicum course involves playing an active leadership role either with Venture or another (approved) outdoor program. Options could include: planning and leading a wilderness trip for Venture, leading groups at the Venture Challenge Courses, serving as a teaching assistant for one of the KOAL courses, working at another local program (e.g., the U.S. National Whitewater Center) delivering adventure programming, summer work in the adventure field, etc. A journal and regular check-in with the course instructor is included in this capstone experience.

Students must attain an overall GPA of 3.0 in all coursework within the minor.

Students matriculated at UNC Charlotte and planning to declare Outdoor Adventure Education as their minor must have an overall GPA of at least 2.0. To apply submit, with a Change of Minor Form, a typed letter of application to the Venture Director, indicating why you are interested in the Minor, how you hope to use the experiences and skills gained through the Minor in your future, and what prior relevant experience you have that you believe will help you be successful in this Minor. The Venture Director will recommend to the Kinesiology Department Chair those individuals who should be admitted into the Program.

### **Course Requirements**

The Minor in Outdoor Adventure Leadership requires the completion of 18 hours of approved courses as follows:

#### **Introductory Course**

KNES 1231 Introduction to Outdoor Adventure (2)

### **Intensive Experience Courses (at least one)**

KNES 2230 Wilderness Experience (2)  
KNES 2233 Rock Climbing (2)  
KNES 2236 Challenge Course Activities (2)

### **Outdoor Leadership-Based Courses (at least one)**

KNES 3230 Wilderness Trip Leading (3)  
KNES 3235 Challenge Course Facilitation (3)

### **Other Required Courses**

KNES 3236 Theory and Foundations of Adventure Education (3)  
KNES 4431 KOAL Practicum (2-4)

### **Elective Courses (4-6 credits minimum)**

Approved elective options include any of the above classes not already taken (e.g., a student may take KNES 3230 and KNES 3235. One of these classes would count towards the 5 elective credits. The same applies to KNES 2230, KNES 2233, and KNES 2236.)

Additional approved courses include the following:

KNES 2237 Raft Guiding (2)  
KNES 2238 Whitewater Kayaking (2)  
KNES 2239 Rock Climbing Management (2)  
KNES 2219 Scuba Diving and Lab (3)  
KNES 2220 Advanced Scuba Diving (1)  
KNES 2290 Emergency Medical Response (3)  
BIOL 3144 Ecology (3)\*  
BIOL 3229 Field Botany (3)\*  
COMM 2105 Small Group Communication (3)\*\*  
COMM 2107 Interpersonal Communication (3)\*\*  
COMM 3135 Leadership, Communication, and Group Dynamics (3)  
COMM 3136 Leadership, Service, and Ethics (3)  
EDUC 2100 Introduction to Education and Diversity in Schools (3)  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)  
ESCI 2010 National Parks: Science Behind the Scenery (3)  
ESCI 3150 Natural Environments of North America (3)\*  
MDSK 3160 Learning and Development: Birth through Adolescence (3)\*  
PSYC 3111 Psychology of Learning (3)\*  
PSYC 3130 Social Psychology (3)\*  
SOCY 4263 Sociology of Small Groups (3) (O, W)\*  
SOWK 2182 Human Behavior in the Social Environment I (3)\*  
SOWK 2183 Human Behavior in the Social Environment II (3)\*

*\*These courses have prerequisites.*

*\*\*These courses are currently restricted to certain majors.*

Students may petition for other classes to count toward elective credits. Furthermore, credit for Independent Study in First Aid could be given for completing a certification in Wilderness First Responder (3 credits), or Wilderness Advanced First Aid (2 credits) or Wilderness First Aid (1 credit). This needs to be arranged through an approved provider. Additionally, credit for Independent Study in Outdoor Adventure could be given by taking one of the courses offered by Outward Bound, National Outdoor Leadership School, or similar program.

The ideal progression is to take the 1000-level, then 2000-level, etc.; with electives taken at any time. However, such a progression may not always be possible for students. It is highly recommended that students in the Minor confer with the Venture teaching staff when planning their personal course progression.



## **Early Entry: Master of Science in Kinesiology**

The Early Entry Program leads to completion of all requirements for the B.S. and M.S. degrees in only five academic years and one or two summers. In this program, students complete requirements for the B.S. degree and begin graduate coursework and research in their Senior, or fourth, year. The Kinesiology Early Entry Program is accelerated; that is, up to twelve credit hours may be taken at the graduate level and double counted towards both the undergraduate and graduate degrees. Students may leave the program after four years with the B.S. degree, or they may complete an additional academic year and summer of full-time study and research to earn both the B.S. and M.S. degrees in Kinesiology.

### **Admission Requirements**

B.S. students may be admitted to the M.S. program without entrance examinations if they have a 3.25 overall GPA and at least 3.25 in the major, have completed the standard B.S. curriculum with 75 credit

hours, and have taken the Graduate Record Examination. The application process and all the required documentation (e.g., test scores, transcripts, letters of recommendation) are the same for Early Entry students as for other applicants to the program. The status of the accepted Early Entry applicant is provisional pending the award of the baccalaureate degree (including sitting for examinations required by their B.S. program). Early Entry M.S. students are expected to complete the requirements for the undergraduate degree by the time they have completed 15 hours of graduate work. Students should consult with the Kinesiology M.S. Graduate Coordinator about their eligibility for this program and to discuss requirements for selection of a research advisor during their Junior year.

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# School of Nursing

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<http://nursing.uncc.edu>

The School of Nursing consists of two divisions: (1) the Undergraduate Division and (2) the Graduate Division. At the Undergraduate Division, the School offers the BSN degree, both at the Upper-Division Pre-Licensure level and the RN-to-BSN completion level. At the Graduate Division, the School offers the RN-MSN curriculum and the MSN degree with various specialty concentrations. Options of traditional classroom education or individual access (online) education are available in the School of Nursing for the RN-to-BSN completion curriculum and some of the MSN specialty concentrations.



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## Bachelor of Science in Nursing

The Bachelor of Science in Nursing degree (BSN) requires a minimum of 122 credit hours for the Upper-Division Pre-Licensure Nursing curriculum and the RN-to-BSN completion curriculum. Students must earn the last 25% of baccalaureate degree requirements at UNC Charlotte.

### Additional Admission Requirements

Admission decisions to the Upper-Division Nursing Major are made by the School for the Fall and Spring semesters of each academic year. *Applicants are competitively reviewed for admission based on their grade point average in the required prerequisite courses.* Consistent with University policy, the School offers admission to applicants whose credentials present the best qualifications among those meeting minimum requirements.

Minimum criteria for application to the Upper-Division Pre-Licensure Nursing Major are:

### Prerequisite Course Requirements

Completion of at least three (3) of the prerequisite science courses and their respective labs is required prior to applying to the Upper-Division Pre-Licensure Nursing Major.

Students applying for Fall admission must complete required prerequisite courses by the end of the Spring semester preceding their admission. Students applying for Spring admission must complete required prerequisite courses by the end of the Fall semester preceding their admission.

UWRT 1101 - Writing and Inquiry in Academic Contexts I (3)

UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

CHEM 1203 Introduction to General, Organic, and Biochemistry I (3)\*

CHEM 1203L Introduction to General, Organic, and Biochemistry I Laboratory (1)\*

CHEM 1204 Introduction to General, Organic, and Biochemistry II (3)\*

CHEM 1204L Introduction to General, Organic, and Biochemistry II Laboratory (1)\*

or

CHEM 1251 General Chemistry I (3)\*

CHEM 1251L General Chemistry I Laboratory (1)\*

CHEM 1252 General Chemistry II (3)\*

CHEM 1252L General Chemistry II Laboratory (1)\*

BIOL 2273 Human Anatomy and Physiology (3)\*

BIOL 2273L Human Anatomy and Physiology Laboratory (1)\*

or

KNES 2168 Human Anatomy and Physiology for the Health Professions (3)\*

KNES 2168L Human Anatomy and Physiology Laboratory for the Health Professions (1)\*

BIOL 2274 Human Anatomy and Physiology II (3)\*

BIOL 2274L Human Anatomy and Physiology II Laboratory (1)\*

or

KNES 2169 Human Anatomy and Physiology II for the Health Professions (3)\*

KNES 2169L Human Anatomy and Physiology Laboratory II for the Health Professions (1)\*

BIOL 2259 Fundamentals of Microbiology (3)\*

BIOL 2259L Fundamentals of Microbiology Laboratory (1)\*

MATH 1100 College Algebra and Probability (3)

STAT 1222 Introduction to Statistics (3) or

STAT 1220 Elements of Statistics I (BUSN) (3) or

STAT 1221 Elements of Statistics I (3)

PSYC 1101 General Psychology (3)

SOCY 1101 Introduction to Sociology (3) or

ANTH 1101 Introduction to Anthropology (3)

NURS 2100 General Nutrition (2)\*

NURS 2200 Human Growth and Development (3)\*

### Grade Requirements

All prerequisite courses must be completed with an overall GPA of 3.0 or above. Courses marked with \* must be completed with a grade of A or B (a grade of C or above is required for all other prerequisite courses). Applicants will have one opportunity to make a C in only one of these courses, and must retake that course to earn a grade of B or above. Students are allowed only one (1) retake total for the above prerequisite courses. Repeats

of other grades below a B will not be accepted once the first grade of C or below is made. All grades earned from all

universities attended are considered in the admission process. Grades for courses from other

universities are included, not just grades earned at UNC Charlotte. 4-credit-hour science courses with inclusive labs at other colleges or universities transfer to UNC Charlotte as two courses. Thus, a C grade in such courses transfers as two C grades, making the person not eligible for admission to Pre-Nursing and the Upper-Division Pre-Licensure Nursing Major.



### Certification Requirement

Students admitted to the Upper-Division Pre-Licensure Nursing Major must be certified as a Nurse Aide I (CNA I) and listed in the North Carolina Nurse Aide Registry.

### Technological Requirement

All students admitted to the Upper-Division Pre-Licensure Nursing Major must have prerequisite computer knowledge in using email, word processing (create/save/open/retrieve), file management, editing, formatting, and using an Internet browser (search and navigate).

## Application Process

Application to the Upper-Division Pre-Licensure Nursing Major is done online via NursingCAS. Information about the online application process is available on the School of Nursing website. The application deadline is January 31 for Fall admissions and August 31 for Spring admissions. Admission decisions are communicated in writing by the School. Eligible applicants who are not offered admission may reapply for a future term.

## Pre-Nursing

Freshmen seeking admission to the Upper-Division Pre-Licensure Nursing Major may be admitted as Pre-Nursing. Freshmen who do not meet the criteria for admission as Pre-Nursing may request a change of major to Pre-Nursing after completion of 32 credit hours at UNC Charlotte with an overall GPA of 3.0 or above.



Transfer students who have not completed all prerequisites may be admitted to UNC Charlotte as Pre-Nursing. In order to declare Pre-Nursing,

transfer students admitted to the University must have an overall GPA of 3.0 based on all university/college coursework. Transfer students who do not meet the criteria for admission as Pre-Nursing may request a change of major to Pre-Nursing after completion of the first full semester at UNC Charlotte (at least 15 credit hours; summer not included) with an overall GPA of 3.0 or above.

Freshmen and transfer students who have never applied for admission as Pre-Nursing may request a change of major to Pre-Nursing. Freshmen in this category may apply for a change of major after completion of 32 credit hours (the freshman year), and must follow the progression criteria listed below. Transfer students in this category must follow the criteria of progression in Pre-Nursing listed below.

In order to progress in Pre-Nursing, students must meet the following:

### Prerequisite Course Requirements

CHEM 1203 Introduction to General, Organic, and Biochemistry I (3)

CHEM 1203L Introduction to General, Organic, and Biochemistry I Laboratory (1)

or

CHEM 1251 General Chemistry I (3)

CHEM 1251L General Chemistry I Laboratory (1)

CHEM 1204 Introduction to General, Organic, and Biochemistry II (3)

CHEM 1204L Introduction to General, Organic, and Biochemistry II Laboratory (1)

or

CHEM 1252 General Chemistry II (3)

CHEM 1252L General Chemistry II Laboratory (1)

BIOL 2259 Fundamentals of Microbiology (3)

BIOL 2259L Fundamentals of Microbiology Laboratory (1)

BIOL 2273 Human Anatomy and Physiology (3)

BIOL 2273L Human Anatomy and Physiology Laboratory (1)

or

KNES 2168 Human Anatomy and Physiology for the Health Professions (3)

KNES 2168L Human Anatomy and Physiology Laboratory for the Health Professions (1)

BIOL 2274 Human Anatomy and Physiology II (3)

BIOL 2274L Human Anatomy and Physiology II Laboratory (1)

or

KNES 2169 Human Anatomy and Physiology II for the Health Professions (3)

KNES 2169L Human Anatomy and Physiology Laboratory II for the Health Professions (1)

NURS 2100 General Nutrition (2)

NURS 2200 Human Growth and Development (3)

### Grade Requirements

Applicants must have an overall GPA of 3.0 or above at the completion of 32 credit hours. Transfer students must have a GPA of 3.0 or above at the completion of the first full semester at UNC Charlotte.

An overall GPA of 3.0 or above at the completion of courses in each of the 3rd and 4th semesters is required. All of the prerequisite science and pre-nursing courses must be completed with grades of A or B. Pre-Nursing students can have only one grade of C or below, and they must retake the course to earn a B or above. Repeats of other grades below a B are not accepted once the first grade of C or below is made. Students earning more than one C in those prerequisite courses cannot remain in Pre-Nursing, must change their major, and are not eligible for admission to the Upper-Division Pre-Licensure Nursing Major. 4-credit-hour science courses with inclusive labs taken at other universities will transfer to UNC Charlotte as two courses. Thus, a C grade in such courses transfers as two C grades, making the person ineligible for admission to the nursing program.

Note: Admission as Pre-Nursing does not automatically admit an applicant to the Nursing Major.

## Pre-Licensure Upper-Division Nursing Major Requirements

### Major Courses (61 credit hours)

- NURS 3102 Introduction to Nursing Science (3)
- NURS 3105 Concepts of Professional Nursing (3)
- NURS 3107 Pathophysiology: Clinical Concepts of Illness and Disease (3)
- NURS 3108 Health Assessment and Application (3)
- NURS 3205 Pharmacology in Health and Illness (3)
- NURS 3230 Illness and Disease Management (3)
- NURS 3250 Nursing Care of the Childbearing Family (2)
- NURS 3260 Nursing Care of Children (2)
- NURS 3425 Practicum in Concepts of Professional Nursing (2)
- NURS 3430 Practicum in Illness and Disease Management (3)
- NURS 3440 Practicum in Nursing Care of Children and the Childbearing Family (3)
- NURS 4100 Nursing Care of the Aging Adult (3)
- NURS 4120 Psychiatric Mental Health Nursing (3)
- NURS 4130 Complex Illness and Disease Management (3)
- NURS 4203 Leadership and Informatics for Nursing Practice (3)
- NURS 4240 Population Focused Nursing (3)
- NURS 4420 Practicum in Psychiatric Mental Health Nursing (3)
- NURS 4430 Practicum in Complex Illness and Disease Management (3)
- NURS 4440 Practicum in Population Focused Nursing (2)
- NURS 4450 Design and Coordination of Care (3) (W)
- NURS 4600 Professional Nursing: Trends, Issues, and Licensure (3)
- NURS 4900 Research in Nursing Practice (2)

### Grade Requirement

All Nursing major courses must be completed with a grade of C or above, with a minimum GPA of 2.0.

### Additional Requirement

Students must complete a nursing licensure exam (NCLEX) review course prior to graduation.

**Degree Total = 122 credit hours**

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## RN-to-BSN Curriculum

### Additional Admission Requirements

Registered Nurses seeking a Bachelor of Science in Nursing degree may apply for admission to the RN-to-BSN curriculum. Criteria for admission to the program are a current unencumbered license as a Registered Nurse, a cumulative grade point average of 2.0 or above in all college coursework and at least a C in all required nursing prerequisites by the end of the semester prior to the semester for which application is made.

Admission decisions are made by the School of Nursing. Applicants are competitively reviewed for admission based on their prerequisite GPA in all college transferable coursework. Students are admitted in cohorts two times each academic year. Completed applications are accepted from November 15 to March 30 for the fall cohort and from May 15 to September 30 for the spring cohort. Applications are available online at [nursing.uncc.edu](http://nursing.uncc.edu); click on Degree Programs/Undergraduate Programs/RN-BSN Completion Program, and scroll down to the link. Admission decisions are communicated in writing by the School. Applicants who are denied may reapply.

All students admitted to the RN-to-BSN completion curriculum need to have prerequisite computer knowledge in using e-mail, word processing (create/save/open/retrieve), file management, editing, formatting, and using an internet browser (search and navigate). The RN-to-BSN nursing curriculum is currently offered through a totally web-based format (through Distance Education). The format is 10 courses and 31 credit hours in length.



### Degree Requirements

#### Prerequisite Courses (46-48 credit hours)

All General Education and nursing prerequisite courses must be completed by the end of the semester preceding the semester for which the application is made.

Prior to admission to the nursing program, students are required to complete:

- BIOL 2259 Fundamentals of Microbiology (3)
- BIOL 2259L Fundamentals of Microbiology Lab (1)
- BIOL 2273 Human Anatomy and Physiology (3)  
or KNES 2168 Human Anatomy and Physiology for the Health Professions (3)
- BIOL 2273L Human Anatomy and Physiology Lab (1)  
or KNES 2168L Human Anatomy and Physiology for the Health Professions Lab (1)
- BIOL 2274 Human Anatomy and Physiology II (3)  
or KNES 2169 Human Anatomy and Physiology for the Health Professions II (3)
- BIOL 2274L Human Anatomy and Physiology II Lab (1)  
or KNES 2169L Human Anatomy and Physiology for the Health Professions II Lab (3)
- CHEM 1203 Introduction to General, Organic, and Biochemistry I (3) and CHEM 1203L General, Organic, and Biochemistry I Lab (1)  
or CHEM 1251 General Chemistry I (3) and CHEM 1251L General Chemistry I Lab (1)
- LBST 1100 series (3)
- LBST 2101 Western Cultural and Historical Awareness (3)
- LBST 2102 Global and Intercultural Connections (3)
- LBST 2200 series (3)
- MATH 1100 College Algebra and Probability (3)
- PSYC 1101 General Psychology (3)
- SOCY 1101 Introduction to Sociology (3)  
OR ANTH 1101 Introduction to Anthropology (3)
- STAT 1222 Introduction to Statistics (3)  
OR STAT 1220 Elements of Statistics I (BUSN) (3)  
OR STAT 1221 Elements of Statistics I (3)
- UWRT 1101 Writing and Inquiry in Academic Contexts I (3)
- UWRT 1102 Writing and Inquiry in Academic Contexts II (3)

*Note: Registered nurses seeking admission to the RN-to-BSN curriculum who need to complete nursing prerequisites and/or General Education courses may apply for admission as a Pre-RN-to-BSN student. Applicants must have a cumulative GPA of at least 2.0 on all college work attempted. **Admission as a Pre-RN-to-BSN student does not automatically admit an applicant to the RN-to-BSN Program.***

#### **Prerequisites for Participation in Clinical Experiences**

##### ***Immunization and Health Status***

All RN-to-BSN students must meet the University's immunization and health status requirements.

##### ***Professional Liability Insurance***

All students must show proof of professional liability insurance for a Registered Nurse (RN).

#### ***Universal Precautions***

All students must successfully complete a College computer-based exam on universal precautions each year of the professional program.

#### ***Drug Testing and Criminal Background Checks***

To comply with clinical agency requirements, students in the nursing program may be required to undergo drug testing and have a criminal background check before being allowed to participate in clinical experiences. Students are responsible for the cost of drug testing and criminal background checks.

#### **Requirements for Progression in the Nursing Program**

- 1) The Progression Policy for upper-division nursing students is included in the School of Nursing handbooks, which are available online at [nursing.uncc.edu](http://nursing.uncc.edu) under "Student Resources."
- 2) No course in the Nursing major can be taken as transient study. Transfer credit for nursing courses will be considered on an individual basis.



#### **Major Courses (28 credit hours)**

- NURN 3103 Concepts of Professional Nursing Science (3)
- NURN 3104 Issues in Cultural Health (1)
- NURN 3108 Health Assessment for Nurses (3)
- NURN 4100 Aging and Health (3) (O)
- NURN 4201 Information Technology: Application in Health Care (2)
- NURN 4203 Leadership in Nursing Practice (2)
- NURN 4440 Community Health Nursing (6)
- NURN 4450 Design and Coordination of Care for Nurses (6) (W)
- NURN 4900 Research in Nursing Practice (2)

#### **Elective Course (3 credit hours)**

Select one nursing elective course approved by the School of Nursing.

## Grade Requirement

A grade of C or above in all Nursing major courses and an overall minimum GPA of 2.0 is required.

## Degree Total = 122 credit hours

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Early Entry: Master of Science in Nursing

The RN-MSN Early Entry Program is designed for the outstanding student who wants to pursue an accelerated path to the MSN. Applicants must meet all admission requirements for the RN-to-BSN and graduate program and make application directly to the Graduate School with the appropriate fee simultaneously with the application to RN-to-BSN. The following application criteria apply to Early Entry MSN applicants:

- 1) Meets all criteria for admission to the RN-to-BSN Program (all prerequisites taken).
- 2) Satisfactory performance on the Graduate Record Examination or the Miller Analogies Test or a previous Graduate degree with documentation of test scores.
- 3) One year of professional nursing practice is recommended.
- 4) An essay (statement of purpose) describing the applicant's experience and objective in undertaking graduate study in the chosen specialty.
- 5) The program of study will substitute ten (10) credits from the MSN for the BSN program. NURS 6160 (Nursing Research) will be substituted for NURN 4900 (Research in Nursing Practice); NURS 6115 (Health Policy) will be substituted for NURN 4201 (Information Technology: Applications in Health Care); NURS 6101 (Theoretical Basis for Nursing Practice) will be substituted for NURN 3103 (Concepts of Professional Nursing Science); and one additional graduate course will be substituted for the Nursing Elective. These 10 credits will apply to both programs. Credit hours for NURN 3103 are awarded upon successful completion of NURN 4450.
- 6) Progression in the MSN program is provisional upon evidence of successful completion of the BSN with a GPA of 3.0 in the RN-to-BSN program. *(Note: if only the BSN degree is awarded, any graduate level credit hours taken as part of the combined curriculum become part of the BSN*

*degree and are not eligible for transfer into an MSN major.)*

- 7) Students graduate with a BSN and then a MSN.
- 8) Nurse Anesthesia Across the Lifespan, Family Nurse Practitioner, and Adult-Gerontology Acute Care Nurse Practitioner do not admit Early Entry students.

Tuition rates for courses are based on the academic status of students, not on the undergraduate or graduate level of the course. As soon as students enroll in a graduate course, their academic status changes from undergraduate to graduate. This changes the tuition charges from undergraduate to graduate for all courses taken in the remainder of the RN-to-BSN program as well as the courses in the MSN program.



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# Department of Public Health Sciences

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<http://publichealth.uncc.edu>

The Department of Public Health Sciences was originally founded as the Department of Health Behavior and Administration on July 1, 2002, as part of the transformed College of Health and Human Services. The new department was conceived in response to recommendations derived from UNC Charlotte's Health Commission Report (2000) as well as a variety of initiatives placing emphasis on population health and health behavior research. In May 2007, the department was renamed to Public Health Sciences to better reflect the unit's larger-scale set of current and planned research programs, degree offerings, and service activities. The department's goals include creating North Carolina's second accredited School of Public Health.

## Vision

The Department of Public Health Sciences is a premier academic unit providing collaborative and integrated approaches to improving health and healthcare. An interdisciplinary, research-focused faculty provides educational experiences for researchers and practitioners that are relevant to contemporary public health and health care administration. The department supports an environment that enhances the preparation of competent leaders in community health behavior, healthcare administration and policy, and health services research at the baccalaureate, master's and doctoral levels; for local, national, and international partnerships that enhance students' knowledge of health care issues; and for its focus on vulnerable populations.

## Mission

The Department of Public Health Sciences engages in research, teaching, and service to prepare future researchers and practitioners in public health, health care administration, and health services research at the baccalaureate, masters, and doctoral level that meets the needs of an increasingly diverse student body and workforce. An interdisciplinary faculty makes available local, national, and international educational opportunities through nationally accredited programs that support collaborative learning and integrated experiences to develop knowledge and understanding of public health and health care issues. Faculty research programs focus on individual and population

health including: the prevention and management of disease across the lifespan; the health status of diverse, urban communities; and population health and health care analytics.

The Department of Public Health Sciences is committed to academic excellence. The department received the Provost's Award for Excellence in Teaching in 2012, and the Bachelor of Science in Public Health degree program has been recognized by the Association of American Colleges and Universities as a model program. Our Public Health baccalaureate and master's degree programs are accredited by the Council on Education for Public Health (CEPH). The Master of Health Administration (MHA) degree program is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME). The department is a member of the Association of Accredited Public Health Programs, Association of University Programs in Health Administration; and the College of Health and Human Services is an affiliate member of AcademyHealth. The University of North Carolina at Charlotte is an official testing site for the Certified Health Education Specialist (CHES) exam.

The department supports the University's core values encouraging diversity and equal educational and employment opportunities throughout the University community. These values are evident in the University's non-discrimination policies, the Council on University Community, and the Multicultural Resource Center.

## Degree and Minor Programs

The department offers the Bachelor of Science in Public Health (BSPH) and a Minor in Public Health (HLTH). Undergraduate interdisciplinary experiences provide students better flexibility in working across disciplines as well as within their own specialty as they grow their careers. The department also provides opportunities for students to work closely with individual members of the faculty through either Independent Study or Undergraduate Research experiences.

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## Bachelor of Science in Public Health (BSPH)

Public health is the science and art of promoting health, preventing disease and injury, and prolonging life through organized efforts of society. Public health activities focus on entire populations rather than on individual patients, and public health professionals monitor and diagnose the health concerns of entire communities and promote healthy practices and behaviors to assure our populations stay healthy.

The Bachelor of Science in Public Health (BSPH) prepares students through didactic and practice experiences to apply core principles of public health education within a variety of community settings and to advance the public health profession. The program values professional and academic integrity and ethics, collegiality, engagement with the community, and responsiveness and innovation in its pursuit of attaining the highest possible standards of health and well-being.



The BSPH program is designed to prepare scholar-practitioners with knowledge and skills in the core concepts of public health, including health behavior, research and statistics in health, environmental health, epidemiology, and health administration, as well as in the planning, evaluation, organization, and conduct of community and public health services. The planned course of study adopts an interdisciplinary focus and includes the development of tailored skills through the successful completion of a minor, electives, and experiential learning. The degree will prepare students who are interested in pursuing health-related careers in health promotion, program delivery, health communication, community organization, and behavior change for entry level to mid-level positions in service and research in health departments, public health agencies, community-based organizations, outreach education programs, hospitals, private health organizations, and corporate wellness settings. The program is designed to appeal to students with interests in “population” rather than “clinical” health. Continued study in the Department of Public Health Sciences is also an option for those interested in graduate degrees in Public Health or Health Administration. For details on these programs, see the

UNC Charlotte Graduate Catalog.

### Additional Admission Requirements

Students must apply for admission to the Major in Public Health (BSPH). Applications are accepted from students who will have completed 60 credit hours by the time they begin to take courses in the major, including the following 25 hours of courses listed in the PRPH Major (*whether or not the student declared the PRPH Major*): HLTH 2101, HLTH 3101, HLTH 4280, Quantitative courses (6 hours), Science courses (7 hours), and Social Science courses (3 hours). (*NOTE: Students will complete any remaining PRPH requirements following admission to the BSPH.*)

Admissions only occur for Fall semesters and the number of students admitted each Fall is limited. BSPH admission is competitive and based on the following:

- A minimum cumulative GPA of 2.5 for 60 credit hours
- GPA for completed courses including HLTH 2101, HLTH 3101, HLTH 4280, Quantitative courses (6 hours), Science courses (7 hours), and Social Science courses (3 hours)
- Goal statement and application for admission

Applications for admission should be submitted the spring semester prior to eligibility to begin the BSPH Major in the Fall semester. Applications for admission are due in February of each year, and include academic transcripts, application, and a statement of future career goals.

### Degree Requirements: Pre-Public Health Major (PRPH)

#### *(Guidelines for Freshman and Sophomore Years)*

Applicants who satisfy freshman or transfer requirements for admission to the University and are interested in the BSPH can declare the Pre-Public Health Major (PRPH). It includes a combination of 70-75 hours of courses that fulfills the UNC Charlotte General Education requirements; declaration of a minor; and serves as preparatory coursework for the Public Health major (BSPH).

#### General Education Courses (31-34 credit hours)

For details on required courses, refer to the General Education program.

#### Foundation Courses (15 credit hours)

##### *Prerequisite Core Courses (9 credit hours)*

- HLTH 2101 Healthy Lifestyles (3)
- HLTH 3101 Foundations of Public Health (3)
- HLTH 4280 Global Health Issues (3)

### **Health-Related Communication Courses (6 credit hours)**

Select two of the following:

- COMM 1101 Public Speaking (3)
- COMM 2100 Introduction to Communication Theory (3)
- COMM 2105 Small Group Communication (3)
- COMM 2107 Interpersonal Communication (3)
- COMM 3115 Health Communication (3)
- COMM 3130 Communication and Public Advocacy (3)
- COMM 3135 Leadership, Communication, and Group Dynamics (3)
- COMM 3141 Organizational Communication (3)

### **Minor Courses (15-26 credits)**

Choose any minor on campus except the Minor in Public Health.

### **Unrestricted Elective Courses**

As needed for the above courses to add up to 70-75 credit hours total. Study abroad courses are included.

## **Degree Requirements: Public Health Major (BSPH)**

### **(Guidelines for Junior and Senior Years)**

The Public Health major includes 50 credit hours of courses that are designed to meet the criteria established by the Council on Education for Public Health (CEPH) for accreditation of public health degree programs. Students completing the curriculum will be eligible to sit for the nationally-recognized Certified Health Education Specialist (CHES) exam.



### **Major Courses (32 credit hours)**

- HLTH 3102 Comparative Healthcare Systems (3)
- HLTH 3103 Behavior Change Theories and Practice (3)
- HLTH 3104 Research and Statistics in Health (3)
- HLTH 3104L Research and Statistics in Health Lab (1)
- HLTH 3105 Public Health Education and Promotion (3)
- HLTH 4102 Healthcare Administration(3)
- HLTH 4103 Environmental Health (3)
- HLTH 4104 Epidemiology (3)
- HLTH 4105 Program Planning and Evaluation (3)
- HLTH 4105L Program Planning and Evaluation Lab (1)
- HLTH 4400 Public Health Internship (3)
- HLTH 4600 Capstone(3)

### **Restricted Elective Courses (18 credit hours) Culture and Health Elective Courses (6 hours)**

Select two of the following:

- AFRS 3261 Psychology of the Black Experience (3)
- ANTH 3122 Culture, Health, and Disease (3)  
or ANTH 3222 Culture, Health, and Disease (3)
- HLTH 3115 Health and the Aging Process (3)  
or GRNT 3115 Health and the Aging Process (3)
- HLTH 4260 Women: Middle Age and Beyond (3)  
or GRNT 4260 Women: Middle Age and Beyond (3)  
or WGST 4260 Women: Middle Age and Beyond (3)
- NURS 4191 Women's Health Issues (3)  
or WGST 4191 Women's Health Issues (3)

### **Health-Related Elective Courses (12 hours)**

Select four of the following:

- AFRS 4630 Environmental and Public Health in Africa (3)
- COMM 3115 Health Communication (3)
- ECON 3141 Health Economics (3)
- KNES 3260 Nutrition and Health Fitness (3)
- KNES 4130 Applied Nutrition (3)
- POLS 3125 Health Care Policy (3)
- PHIL 3230 Healthcare Ethics (3)
- SOCY 4130 Sociology of Health and Illness (3)
- SOCY 4168 Sociology of Mental Health and Illness (3)
- Any HLTH 3000-level or 4000-level course, except HLTH 3101 or HLTH 4280 (3)
- Any 3000- or 4000-level health-related study abroad course (3)

## **Degree Total = 120-125 Credit Hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## **Early Entry: Master of Science in Public Health or Master of Health Administration**

Exceptional BSPH students (or those pursuing a related baccalaureate degree concurrent with the Minor in Public Health) selected for the Early Entry program may begin graduate coursework in their Senior year toward the M.S. in Public Health (MSPH) or the Master of Health Administration (MHA). The Early Entry Program is accelerated; that is, up to twelve credit hours may be taken at the graduate level and double counted toward both the undergraduate and graduate degrees. Students may leave the program with their baccalaureate degree, or they may complete the remaining coursework required to earn the MSPH or the MHA. Students pursuing the Early Entry option

can reduce the time needed to earn both degrees by one semester.

## Admission Requirements

Applicants to the MSPH or MHA Early Entry Program must: 1) have Junior standing at the time of application (and have completed at least 75 hours by the proposed entry semester); 2) be enrolled in the Public Health (upper-division) major OR enrolled in a related major and the Minor in Public Health; and 3) have at least a 3.20 overall GPA and a minimum 3.5 GPA from at least 12 hours in the Department of Public Health Sciences (HLTH courses) by the end of the Fall semester prior to starting the Early Entry Program. Early Entry applicants submit a full graduate application, including scores of the Graduate Record Examination (GRE).

Accepted Early Entry students have provisional graduate admission pending the award of the baccalaureate degree and must complete their undergraduate degree requirements by the time they have completed 15 hours of graduate work.

Interested students should consult with the MSPH or MHA Program Coordinator about their eligibility for this program.

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## Minor in Public Health

The Minor in Public Health supports students interested in health-related careers or those seeking a health dimension within other career choices. Students in the minor come from biological, social, and behavioral sciences, as well as from health-related academic majors. The minor extends students' working knowledge of health applications that prepares them to be competitive in the job market and to make advanced degree choices.



Students seeking entry-level positions in health services or non-clinical health agencies and organizations after graduation will find this minor helpful in broadening their understanding of contemporary public health issues. Students in the minor are well positioned for graduate work in specific disciplines like psychology, sociology, social work, public health, health communication, or adult development and aging. The program also provides applied health content and added value to academic degrees of students seeking admission to dental, nursing, medical, pharmacy, physical therapy and other professional schools.

The Minor in Public Health fosters an interdisciplinary perspective of individual and population health. National health priorities in the first decade of the 21st century emphasize interdisciplinary training. As students develop specific healthcare competencies, undergraduate interdisciplinary experiences provide students better flexibility in working across disciplines as well as within their own major.

The Minor in Public Health is awarded only to students completing an undergraduate major at UNC Charlotte. The minor consists of 22 credit hours: 13 hours must come from a set of required courses and nine hours must come from the set of unrestricted electives. Students must have completed the Required Science and Lab course from the University's General Education Requirements in order to declare the Minor in Public Health. To qualify for the Minor in Public Health upon graduation, students must have earned a GPA of at least 2.0 in courses applied to the minor. Students are encouraged to take electives outside their major department and college to gain a broader health perspective. Because additions and deletions of courses may be made to correspond to current University offerings, students are encouraged to consult with the Program Coordinator as they plan their schedules.

## Program Requirements

### Required Courses (9 hours)

HLTH 3101 Foundations of Public Health (3)  
HLTH 4104 Epidemiology (3)  
HLTH 4280 Global Health Issues (3)

### Required Science and Lab Course (4 hours)

Choose a science and corresponding lab course from the University's General Education Requirements. This is a prerequisite for declaring the Minor in Public Health.

### Unrestricted Electives (9 hours)

*Select three courses:*

AFRS 3261 Psychology of the Black Experience (3)

AFRS 4630 Environmental and Public Health in Africa (3)  
 ANTH 3122 Culture, Health, and Disease (3)  
 or ANTH 3222 Culture, Health, and Disease (3)  
 ANTH 4131 Culture, Pregnancy and Birth (3)  
 COMM 3115 Health Communication (3)  
 ECON 3141 Health Economics (3)  
 ETIN 3243 Occupational Health Technology (3)  
 FINN 3271 Principles of Risk Management and Insurance (3)  
 GRNT 2100 Aging and the Life Course (3)  
 GRNT 2124 Psychology of Adult Development and Aging (3)  
 or PSYC 2124 Psychology of Adult Development and Aging (3)  
 HIST 2140 Disease and Medicine in History (3)  
 HLTH 3115 Health and the Aging Process (3)  
 or GRNT 3115 Health and the Aging Process (3)  
 KNES 2150 Introduction to Kinesiology (3)  
 NURS 4191 Women's Health Issues (3)  
 or WGST 4191 Women's Health Issues (3)  
 PHIL 3230 Healthcare Ethics (3)  
 POLS 3125 Healthcare Policy (3)  
 PSYC 2151 Introduction to Abnormal Psychology (3)  
 PSYC 2155 Introduction to Community Psychology (3)  
 PSYC 2160 Introduction to Health Psychology (3)  
 SOCY 4130 Sociology of Health and Illness (3)  
 SOCY 4168 Sociology of Mental Health and Illness (3)  
 Any unrestricted HLTH 2000- , 3000- , or 4000-level course

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# School of Social Work

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<http://socialwork.uncc.edu>

The School of Social Work offers a major in Social Work leading to the Bachelor of Social Work (BSW) degree. On the graduate level, the Department offers the Master of Social Work (MSW) degree. See the *UNC Charlotte Graduate Catalog* for details on the MSW.

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## Bachelor of Social Work (BSW)

Social work is a profession devoted to helping people function as effectively as possible within their environment, be it a context such as a family, a group, an organization such as a job, or a community. The UNC Charlotte BSW Program is accredited by the Council on Social Work Education, the national accrediting body for social work education programs. The BSW degree prepares students for generalist social work practice with individuals, families, groups, organizations and communities. Generalist practice relates to utilizing multiple types of interventions that would be useful for different types of social systems and client populations. BSW graduates provide services such as assessment and intervention, counseling, crisis intervention, referral, mediation, and advocacy with diverse populations across all age groups. BSW graduates work in a broad array of settings including: hospitals; group homes; mental health, substance abuse, child welfare, and youth and family service agencies; nursing homes, and schools. The degree is centered in professional social work values and ethics within an increasingly global environment and is designed to affirm the human rights of diverse groups of people, especially populations-at-risk and groups which have historically been oppressed due to race, ethnicity, socioeconomic status, gender, sexual orientation, age, and ability. BSW education also provides an excellent foundation for those who wish to pursue graduate study in social work.



## Degree Requirements

The Major in Social Work leading to the BSW degree consists of 121-123 credit hours.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. Students majoring in Social Work should take the following courses that meet general education and major requirements:

BIOL 1110 Principles of Biology I (3)  
BIOL 1110L Principles of Biology I Laboratory (1)  
POLS 1110 American Politics (3)  
PSYC 1101 General Psychology (3)  
SOCY 1101 Introduction to Sociology (3)  
STAT 1222 Introduction to Statistics (3)

### Foundation Course (1 or 3 credit hours)

HAHS 1000 Prospect for Success in Health and Human Services (1 or 3)

### Major Courses (53 credit hours)

SOWK 1101 The Field of Social Work (3)  
SOWK 2182 Human Behavior in the Social Environment I (3)  
SOWK 2183 Human Behavior in the Social Environment II (3)  
SOWK 3120 Diversity and Populations-at-Risk (3)  
SOWK 3133 Community Engagement and Outreach (3)  
SOWK 3181 Practice Methods I (3)  
SOWK 3182 Practice Methods II (3)  
SOWK 3184 Practice Methods III (3)  
SOWK 3199 Professional Behaviors, Ethics, and Communication (3)  
SOWK 3201 Foundations of Social Welfare (3) (W)  
SOWK 3202 Social Welfare Policy (3)  
SOWK 3482 Field Practicum I (5) (O)  
SOWK 3484 Field Practicum II (6) (O)  
SOWK 3900 Social Work Research I (3)  
SOWK 3988 Social Work Research II (3)  
PSYC 2151 Introduction to Abnormal Psychology (3)

### Population Group Courses (12 hours)

Students are required to complete four 3-hour courses examining diverse and vulnerable population groups of interest to social work. Courses may include such topics as aging, child welfare, gender, international cultures, mental health, religion, population growth, and sexuality. For a complete listing of pre-approved Population Group Courses, please see the School of Social Work website at [socialwork.uncc.edu](http://socialwork.uncc.edu).

### Unrestricted Elective Courses

As needed.

**Degree Total = 121-123 Credit Hours**

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



# *College of* Liberal Arts & Sciences



# College of Liberal Arts & Sciences

<http://clas.uncc.edu>

The College of Liberal Arts & Sciences is an academic community engaged in advancing the discovery, dissemination, and application of knowledge in the traditional areas of liberal arts and sciences and in emerging areas of study. As a community focused on learning and teaching, the College is guided by an unshakeable commitment to humanistic values and ethical conduct, by a creative and entrepreneurial frame of mind, and by an awareness of the global context in which the University exists.

The liberal arts are the core of the University's educational program, both for students majoring in liberal arts and sciences and for students majoring in professional degree programs. As a result, courses offered within the College of Liberal Arts & Sciences are frequently those designated to satisfy University General Education requirements (see *General Education Requirements* in the *Degree Requirements and Academic Policies* section of this *Catalog*).

## Departments

The College of Liberal Arts & Sciences consists of these departments:

- Department of Aerospace Studies (Air Force ROTC)
- Department of Africana Studies
- Department of Anthropology
- Department of Biological Sciences
- Department of Chemistry
- Department of Communication Studies
- Department of Criminal Justice and Criminology
- Department of English
- Department of Geography and Earth Sciences
- Department of Global, International, and Area Studies
- Department of History
- Department of Languages and Culture Studies
- Department of Mathematics and Statistics
- Department of Military Science (Army ROTC)
- Department of Philosophy
- Department of Physics and Optical Science
- Department of Political Science and Public Administration
- Department of Psychology
- Department of Religious Studies
- Department of Sociology

## Interdisciplinary Programs

The College of Liberal Arts & Sciences also houses the following undergraduate interdisciplinary programs:

- American Studies
- Children's Literature and Childhood Studies
- Film Studies
- Gerontology
- Humanities, Technology, and Science
- Latin American Studies
- Urban Studies
- Women's and Gender Studies

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## Degree Programs

### Major Programs

- Bachelor of Arts in Africana Studies (B.A.)
- Bachelor of Arts in Anthropology (B.A.)
- Bachelor of Arts in Biological Sciences (B.A.)
- Bachelor of Science in Biological Sciences (B.S.)
- Bachelor of Arts in Chemistry (B.A.)
- Bachelor of Science in Chemistry (B.S.)

- Bachelor of Arts in Communication Studies (B.A.)
- Bachelor of Arts in Criminal Justice (B.A.)
- Bachelor of Science in Earth and Environmental Sciences (B.S.)
- Bachelor of Arts in English (B.A.)
- Bachelor of Arts in Environmental Sciences (B.A.)
- Bachelor of Arts in French (B.A.)
- Bachelor of Arts in Geography (B.A.)
- Bachelor of Science in Geography (B.S.)
- Bachelor of Science in Geology (B.S.)
- Bachelor of Arts in German (B.A.)
- Bachelor of Arts in History (B.A.)
- Bachelor of Arts in International Studies (B.A.)
- Bachelor of Arts in Japanese (B.A.)
- Bachelor of Arts in Latin American Studies (B.A.)
- Bachelor of Arts in Mathematics (B.A.)
- Bachelor of Science in Mathematics (B.S.)
- Bachelor of Arts in Mathematics for Business (B.A.)
- Bachelor of Science in Mathematics for Business (B.S.)
- Bachelor of Arts in Meteorology (B.A.)
- Bachelor of Arts in Philosophy (B.A.)
- Bachelor of Arts in Physics (B.A.)
- Bachelor of Science in Physics (B.S.)
- Bachelor of Arts in Political Science (B.A.)
- Bachelor of Science in Psychology (B.S.)
- Bachelor of Arts in Religious Studies (B.A.)
- Bachelor of Arts in Sociology (B.A.)
- Bachelor of Arts in Spanish (B.A.)

### Minor Programs

- Actuarial Mathematics
- Aerospace Studies
- Africana Studies
- American Studies
- Anthropology
- Biology
- Biotechnology
- Chemistry
- Children's Literature and Childhood Studies
- Chinese
- Classical Studies
- Cognitive Science
- Communication Studies
- Criminal Justice
- Diverse Literatures and Cultural Studies
- Earth Sciences
- English
- Environmental Sciences
- Film Studies
- Francophone Studies
- French
- Geography
- Geology
- German
- Gerontology
- History
- Holocaust, Genocide, and Human Rights Studies
- Humanities, Technology, and Science
- International Studies
- Japanese
- Journalism
- Latin American Studies
- Linguistics
- Mathematics
- Military Science
- Philosophy; Physics
- Political Science
- Psychology
- Religious Studies
- Russian
- Sociology
- Spanish
- Statistics
- Technical and Professional Writing
- Urban Studies
- Women's and Gender Studies

Although faculty within the College are committed to departmentally based programs, increased emphasis is being placed on providing strong interdisciplinary programs. The College also strives to promote inter-cultural understanding through its curriculum, as well as through student exchanges and travel opportunities.

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## Degree Requirements

### General Education Requirements

Since all students entering the University must meet the same General Education requirements regardless of major, it is appropriate to concentrate on the completion of those requirements before committing to a specific major. Undeclared students have time to enroll in courses in several disciplines, which allows them to make a more informed judgment about future career decisions. Advisors have a broad working experience with the requirements for majors and offer assistance as students search for the education choice best suited to their individual needs.

### Degree Programs/Majors and Minors Requirements

Students in the College of Liberal Arts & Sciences must satisfy the requirements for the degree program(s) in which they are enrolled. Students should consult with their chosen department to make certain they fully understand all

degree requirements. Some departments in the College of Liberal Arts & Sciences require completion of a minor program of study in conjunction with their major degree program. Students should be familiar with the requirements of any minor program of study they attempt to complete.

### **Foreign Language Requirements**

All students who earn a degree within the College of Liberal Arts & Sciences are required to demonstrate proficiency in the language of their choice through the 1202 level.

Proficiency can be demonstrated in the following ways: (1) completing the required coursework at UNC Charlotte; (2) completing three years of the same foreign language in high school through level three; (3) achieving a satisfactory score on the foreign languages placement test; (4) through approved transfer or transient credit earned at other accredited institutions; (5) by transferring in with an A.A., A.S. or A.F.A. degree; or (6) a combination of the above methods (e.g., placing out of or earning transfer or transient credit for 1201 and completing the 1202 course, completing 1201 and placing out of or earning transfer or transient credit for 1202).

This requirement will apply to all students entering any degree program within the College of Liberal Arts & Sciences Fall 2005 and beyond, except those students whose primary major is in Engineering and are enrolled in either the dual degree program in Mechanical Engineering and Physics or the program in Electrical and Computer Engineering and Physics which were approved and implemented prior to Fall of 2006. Students enrolled in the University prior to Fall 2005 but not enrolled in a degree program in the College of Liberal Arts & Sciences Fall 2005 and beyond will be subject to this requirement, except those students whose primary major is in Engineering and are enrolled in either the dual degree program in Mechanical Engineering and Physics or the program in Electrical and Computer Engineering and Physics which were approved and implemented prior to Fall of 2006.

Although all students in the College of Liberal Arts & Sciences are subject to the 1202 proficiency requirement, students in selected departments will additionally have to satisfy a proficiency requirement through the intermediate (2000) level. All students in the College of Liberal Arts & Sciences should consult with their major department to determine whether or not they are required to complete the intermediate proficiency requirement as part of their major or related coursework.

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## **Advising Center**

The College of Liberal Arts & Sciences administers an advising center for students who have enrolled in a major or pre-major within the college. College advisors are available to provide guidance on both major requirements and General Education requirements. Students enrolled in *all* College of Liberal Arts & Sciences majors are encouraged to consult with college advisors to clarify academic regulations and check their progress toward fulfilling requirements.

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## **Experiential Learning and Service Opportunities**

Students are encouraged to participate in professional work experiences in support of their academic and career development through the cooperative education, 49ership, departmental undergraduate research, service, and internship programs offered to them. The College works with the University Career Center to expand experiential learning offerings to enable more students to graduate with career-related experience. For more information about experiential learning opportunities, please see the University Career Center section of this *Catalog*.

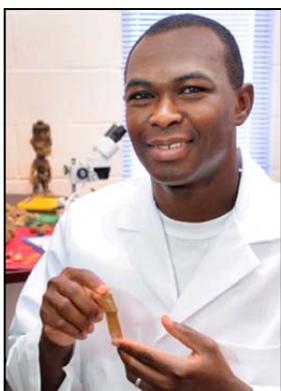
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# Department of Africana Studies

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<http://africana.uncc.edu>

The Department of Africana Studies offers a general Bachelor of Arts degree; a B.A. Africana Studies with concentration in health and environment; and a minor program. Its curriculum focuses on four critical areas: history, culture, social policy (especially health and environment), and entrepreneurship, as these relate to the experiences of the peoples of African descent globally. The department offers a comprehensive liberal arts curriculum that enhances global awareness, engages social policies, fosters entrepreneurial skills in regional and transnational contexts, and develops the skills needed for success in the 21st century. Its interdisciplinary approach presents a stimulating diversity of perspectives integrated into a totality not available in other disciplines, programs, or departments. The curriculum is designed to provide a useful educational experience and academic skills for students who wish to consider graduate study or professional school and pursue careers in entrepreneurship; community development agencies; federal, state, and city civil service; business; museums and archives; health and environment fields; diplomatic and foreign service; as well as research, journalism, international organizations, and teaching.



The goals of the Department of Africana Studies are:

- To disseminate knowledge about the aggregate experience of peoples of African descent by offering a wide range of Africana courses to the University community and the public.
- To generate new knowledge and paradigms about the experiences of peoples of African descent through research, publication, and teaching that are interdisciplinary, transnational, and intercultural.
- To dispel myths and stereotypes about Blackness and Africa-derived cultures and practices through critical course content, programs, exchanges of ideas, and inter-cultural interaction.
- To promote transnational perspectives that foster socio-cultural and political awareness to meet the critical challenges posed by globalization, professional careers, as well as the demands of the

- work world through exposure to relevant experiences and course requirements.
- To provide general and specific academic skills to majors and non-majors through courses and activities that promote research, writing, reading, critical thinking, effective communication, and problem solving.
- To advance the intellectual development and personal growth of students through the acquisition, synthesis, dissemination, and application of a multicultural liberal arts education.
- To serve and contribute to local, national, and international civic institutions.

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## Bachelor of Arts in Africana Studies

The Major in Africana Studies leading to a B.A. degree requires the completion of a minimum 30 credit hours in Africana Studies courses.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (15 credit hours)

- AFRS 1100 Introduction to Africana Studies (3)
- AFRS 3290 Research Methods (3)
- AFRS 4000 Senior Seminar in African Studies (3)
- AFRS 4010 African Diaspora Theory (3)

*Select one of the following:*

- AFRS 2156 African Civilization (3)
- AFRS 2160 African American Experience through Civil War (3)
- AFRS 2161 African American Experience: Civil War to Civil Rights (3)

#### Restricted Elective Courses (15 credit hours)

*Select five of the following:*

- AFRS 2050 Topics in Africana Studies (3)
- AFRS 2011 Yoruba Language and Culture I (3)
- AFRS 2012 Yoruba Language and Culture II (3)
- AFRS 2103 Introduction to Hip Hop (3)
- AFRS 2105 Black Images in the Media (3)
- AFRS 2107 Global Hip Hop (3)
- AFRS 2120 African American Women (3)
- AFRS 2156 African Civilization (3)
- AFRS 2160 African American Experience through Civil War (3)
- AFRS 2161 African American Experience: Civil War to Civil Rights (3)
- AFRS 2170 Introduction to Health and Environmental Issues in the Africana World (3)
- AFRS 2172 Black Sexuality and Health (3)
- AFRS 2206 African Literature, Music, and Art (3) (W)
- AFRS 2207 Pan-Africanism (3)

- AFRS 2208 Education and African-Americans (3)  
 AFRS 2215 Black Families in the U.S. (3) (W)  
 AFRS 2221 Contemporary Africa (3)  
 AFRS 2225 West African Dance and Percussion (3)  
 AFRS 2301 Introduction to African-American Literature (3)  
 AFRS 3050 Topics in Africana Studies (3)  
 AFRS 3101 Perspectives on Race and Ethnicity in the US (3)  
 AFRS 3150 African-American Church and Civil Rights (3)  
 AFRS 3155 Health and Healing in Africa (3)  
 AFRS 3158 Gender and African-American Literature (3)  
 AFRS 3159 African American Poetry (3)  
 AFRS 3179 African American Political Philosophy (3)  
 AFRS 3190 Political Economy of the Caribbean (3)  
 AFRS 3192 African Cinema (3)  
 AFRS 3200 Folklore of Africa and the African Diaspora (3)  
 AFRS 3210 Black Families in the Diaspora (3)  
 AFRS 3218 Racial Violence, Colonial Times to Present (3)  
 AFRS 3220 Caribbean from Slavery to Independence (3)  
 AFRS 3230 Poverty and Discrimination in African Diaspora in the Modern Era (3)  
 AFRS 3240 African Americans and the Legal Process (3)  
 AFRS 3250 African-Americans and Health Communication (3)  
 AFRS 3260 Slavery, Racism and Colonialism in the African Diaspora (3)  
 AFRS 3261 Psychology of the Black Experience (3)  
 AFRS 3265 African Economic Development (3)  
 AFRS 3270 Afro-Latin American History (3) (W)  
 AFRS 3278 Race in the History of Brazil (3)  
 AFRS 3280 Blacks in Urban America (3)  
 AFRS 3692 Colloquium (3) (W)  
 AFRS 3830 Philosophy and Race (3)  
 AFRS 3895 Independent Study (1-3)  
 AFRS 3990 Senior Project in Africana Studies (2-15)  
 AFRS 4050 Topics in Africana Studies (3)  
 AFRS 4101 Modern African Literature in English (3)  
 AFRS 4105 African International Relations (3)  
 AFRS 4401 Professional Internship in Africana Studies (3)  
 AFRS 4630 Environmental and Public Health in Africa (3) (O)  
 AFRS 4640 Environment, State, and Society in the Caribbean and Latin America (3)  
 AFRS 4652 Race, Health, and the African Diaspora (3) (W)

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirement

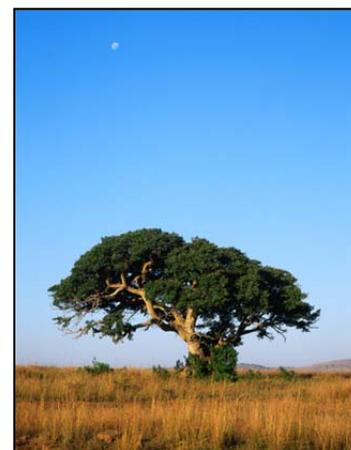
A minimum 2.0 grade point average is required in the 30 credit hours of the Major in Africana Studies.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Bachelor of Arts in Africana Studies with Concentration in Health and Environment

Students may, if desired, complete a Concentration in Health and Environment as part of the B.A. in Africana Studies. The concentration focuses on the cultural, social, ethical, psychological, historical, and policy dimensions of the pertinent health and environmental issues in the global Africana World. The concentration requires the completion of 30 credit hours in Africana Studies courses as follows.



The concentration requires the completion of 30 credit hours in Africana Studies courses as follows.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (18 credit hours)

- AFRS 1100 Introduction to Africana Studies (3)
- AFRS 2170 Introduction to Health and Environmental Issues in the Africana World (3)
- AFRS 3290 Research Methods (3)
- AFRS 4000 Senior Seminar in African Studies (3)
- AFRS 4010 African Diaspora Theory (3)

#### Select one of the following:

- AFRS 2156 African Civilization (3)
- AFRS 2160 African American Experience through Civil War (3)
- AFRS 2161 African American Experience: Civil War to Civil Rights (3)

#### Restricted Elective Courses (12 credit hours)

Three to four courses (9-12 credits) from the following and other AFRS courses approved by the department chair:

#### AFRS Elective Courses

- AFRS 2172 Black Sexuality and Health (3)  
 AFRS/HIST 3155 Health and Healing in Africa (3)  
 AFRS 3250 African-Americans and Health Communication (3)  
 AFRS 3261 Psychology of the Black Experience (3)  
 AFRS 3895 Independent Study (1-3)  
 AFRS 4630 Environmental and Public Health in Africa (3)  
 AFRS 4640 Environment, State, and Society in the Caribbean and Latin America (3)  
 AFRS 4652 Race, Health, and the African Diaspora (3)

### Other Elective Courses

One elective course (3 credit hours) MAY be taken from the following or any other related course approved by the department chair:

- ANTH 2126 World Population Problems (3) (W)  
 ANTH 3122 Culture, Health and Disease (3) (W)  
 ANTH 3124 Food, Nutrition and Culture (3)  
 ANTH 4131 Culture, Pregnancy and Birth (3)  
 COMM 3051 Topics in Health Communication (3)  
 COMM 3115 Health Communication (3)  
 ESCI 2101 The Environmental Dilemma (3)  
 GEOG 2103 Elements of GIScience and Technologies (4)  
 GEOG 2120 Geographic Information Systems: Survey of Applications and Techniques (4)  
 GEOG 3215 Environmental Planning (3) (W)  
 GRNT/HLTH 3115 Health and the Aging Process (3)  
 HIST 2140 Disease and Medicine in History (3)  
 HLTH 3102 Comparative Healthcare Systems (3)  
 HLTH 3103 Behavior Change Theories and Practice (3)  
 HLTH 4090 International Comparative Health Systems: Western Europe (3)  
 HLTH 4103 Environmental Health: A Global Perspective (3)  
 HLTH 4104 Epidemiology (3)  
 HLTH 4280 Global Health Issues (3)  
 NURS/WGST 4191 Women's Health Issues (3)  
 POLS 3125 Health Care Policy (3)  
 SOCY 4130 Sociology of Health and Illness (3)

### Unrestricted Elective Courses

As needed.

### Grade Requirement

A minimum 2.0 grade point average is required in the 30 credit hours of the Major in Africana Studies.

### Research Project/Professional Internship

During their Junior or Senior year, students may design and work on a major research project or enroll in a professional internship program at places such as the Harvey B. Gantt Center for African-American Arts + Culture; Charlotte City Hall; International House; Levine Museum of the New South; Planned Parenthood;

Latibah Collard Green Museum; Neighborhood Good Samaritan Center, Inc.; Juneteeth Festival of the Carolinas; the *Charlotte Observer*; and the *Charlotte Post*.

### Study Abroad

Students may take advantage of the opportunity to travel, work, and study abroad in an exchange program, especially in Africa, the Caribbean, and Europe, as well as with the Peace Corps and Operation Crossroads. For more information, visit the Office of Education Abroad at [edabroad.uncc.edu](http://edabroad.uncc.edu).

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Africana Studies

The Minor in Africana Studies requires the completion of 18 credit hours of Africana Studies courses.

### Program Requirements

#### Minor Requirements (18 credit hours)

- AFRS 1100 Introduction to Africana Studies (3)
- AFRS 4010 African Diaspora Theory (3)
- Six credits at the 2000-level
- Six credits at the 3000- and 4000-levels

### Grade Requirement

A minimum of 2.0 GPA is required for the 18 hours of the Minor in Africana Studies.



# American Studies

<http://americanstudies.uncc.edu>

American Studies is an interdisciplinary program designed to develop in-depth knowledge of American society, past and present. Drawing its curriculum from approved courses in other departments and its own core courses, the program weaves traditionally divergent disciplines together so that students gain a broad understanding of American life and culture. The American Studies program is open to students of all majors. Students may complete the program by fulfilling requirements for the minor.



## Minor in American Studies

A Minor in American Studies consists of 18 credit hours: six hours of American Studies courses including AMST 3100, and 12 credit hours of American Studies courses or approved American-content courses from other departments. A maximum of six hours of American-content courses may be in the student's major. If the student has additional majors or minors, no more than six hours American-content courses from each of these may apply to the American Studies



minor. These stipulations include cross-listed courses regardless of the program designation under which the course was taken. Exceptions may be approved by the Program Director and, if necessary, upon consultation with the other program in question. *Note:*

*Students exercising this option should be aware that the accuracy of the online degree audit may*

*be affected.* All students must have a GPA of at least 2.0 in courses applied to the minor.

The following courses have been approved for the minor. Because additions and deletions are made to correspond to current University offerings, students are advised to consult with the Program Director. Other courses that do not appear on the list, especially topics

and independent study courses, may be approved if they are pertinent to the student's program and deal with an American topic.

### Africana Studies

- AFRS 1100 Introduction to Africana Studies (3)
- AFRS 2105 Black Images in the Media in the U.S. (3)
- AFRS 2120 African American Women (3)
- AFRS 2160 The African American Experience through Civil War (3)
- AFRS 2208 Education and African Americans (3)
- AFRS 2215 Black Families in the United States (3)
- AFRS 2301 Introduction to African American Literature (3)
- AFRS 3101 Perspectives on Race and Ethnicity in the US (3)
- AFRS 3150 The African American Church and Civil Rights (3)
- AFRS 3179 African American Political Philosophy (3)
- AFRS 3218 Racial Violence, Colonial Times to Present (3)
- AFRS 3240 African Americans and the Legal Process (3)
- AFRS 3250 African Americans and Health Communication (3)
- AFRS 2161 The African American Experience: Civil War to Civil Rights (3)
- AFRS 3280 Blacks in Urban America (3)
- AFRS 3158 Gender and African American Literature (3)
- AFRS 3159 African American Poetry (3)

### American Studies

- AMST 2050 Topics in American Studies (3)
- AMST 2100 Introduction to American Indian Studies (3)
- AMST 3000 Seminar in American Studies (3)
- AMST 3020 Seminar in American Studies (3)
- AMST 3050 Topics in American Studies (3)
- AMST 3090 Topics in American Film (3)
- AMST 3100 Introduction to American Studies (3)
- AMST 3210 Childhood in America (3)
- AMST 3800 Independent Study or Directed Reading in American Studies (1-3)
- AMST 4050 Topics in American Studies (3)

### Anthropology

- ANTH 2112 North American Indians (3)
- ANTH 2114 Indians of the Southeastern United States (3)
- ANTH 2152 New World Archaeology (3)
- ANTH 4110 American Ethnic Cultures (3)

### Art History

- ARTH 2190 Art of the United States (3)

### Business Law

- BLAW 3150 Business Law I (3)

BLAW 3250 Business Law II (3)

### Communication Studies

COMM 2110 Women and the Media (3)  
COMM 2120 Black Images in the Media in the U.S. (3)  
COMM 3052 Topics in Mass Media (3)  
COMM 3115 Health Communication (3)  
COMM 3120 Communication and Mass Media (3)  
COMM 3121 Mass Communication and Society (3)  
COMM 3130 Communication and Public Advocacy (3)  
COMM 3131 African American Oratory (3)  
COMM 4101 Media and the Law (3)  
COMM 4102 Federal Interpretation of the First Amendment (3)

### Criminal Justice and Criminology

CJUS 2102 Ethics and the Criminal Justice System (3)  
CJUS 2120 Juvenile Justice (3)  
CJUS 2154 Introduction to Corrections (3)  
CJUS 3102 American Criminal Courts (3)  
CJUS 3110 Criminal Justice and the Law (3)  
CJUS 3112 Famous Criminal Trials of the Twentieth Century (3)  
CJUS 3120 The Juvenile Offender (3)  
CJUS 3121 Juvenile Law (3)  
CJUS 3130 The Administration of Criminal Justice (3)  
CJUS 3141 Law Enforcement Behavioral Systems (3)  
CJUS 3150 Community Corrections (3)  
CJUS 3151 Institutional Corrections (3)  
CJUS 3152 Correctional Law (3)  
CJUS 3153 Juvenile Corrections (3)  
CJUS 4101 Drugs, Crime, and the Criminal Justice System (3)  
CJUS 4160 Victims and the Criminal Justice System (3)  
CJUS 4161 Violence and the Violent Offender (3)  
CJUS 4162 Seminar on Sexual Assault (3)

### Dance

DANC 2226 Vintage Jazz Dance (2)  
DANC 2227 Contemporary Jazz Dance (2)

### Economics

ECON 1101 Economics of Social Issues (3)  
ECON 2101 Principles of Economics Macro (3)  
ECON 2102 Principles of Economics Micro (3)  
ECON 3105 Industrial Relations (3)  
ECON 3106 Labor Economics (3)  
ECON 3107 Employment Law (3)  
ECON 3115 Money and Banking (3)  
ECON 3122 Intermediate Microeconomics (3)  
ECON 3123 Intermediate Macroeconomics (3)  
ECON 3131 Economic History of the United States (3)  
ECON 3141 Health Economics (3)  
ECON 3151 Law and Economics (3)

### English

ENGL 2104 Major American Writers (3)  
ENGL 2301 Introduction to African American Literature (3)  
ENGL 3132 Introduction to Contemporary American English (3)  
ENGL 4103 American Children's Literature (3)  
ENGL 4145 Literature of the American South (3)  
ENGL 3231 Early African American Literature (3)  
ENGL 3232 Early American Literature (3)  
ENGL 3233 American Literature of the Romantic Period (3)  
ENGL 3234 American Literature of the Realist and Naturalist Periods (3)  
ENGL 3235 Modern American Literature (3)  
ENGL 3236 African American Literature, Harlem Renaissance to Present (3)  
ENGL 3237 Modern and Recent U.S. Multiethnic Literature (3)  
ENGL 4139 Early American Literature (3)  
ENGL 4140 American Literature of the Romantic Period (3)  
ENGL 4141 American Literature of the Realist and Naturalist Periods (3)  
ENGL 4142 Modern American Literature (3)

### Geography

GEOG 2140 Geography of North Carolina (3)  
GEOG 2155 Geography of the U.S. and Canada (3)  
GEOG 2160 The South (3)  
GEOG 2200 Introduction to Urban Studies (3)  
GEOG 3100 The City and Its Region (3)  
GEOG 3110 Urban Political Geography (3)  
GEOG 3115 Urban Transportation Problems (3)  
GEOG 3150 Manufacturing Geography (3)  
GEOG 3200 Land Use Planning (3)  
GEOG 3205 Internal Structure of the City (3)  
GEOG 3210 Regional Planning (3)  
GEOG 4108 Sport, Place, and Development (3)  
GEOG 4209 Small Town Planning (3)

### Gerontology

GRNT 2100 Aging and the Lifecourse (3)  
GRNT 3132 Aging and Culture (3)  
GRNT 3267 Sociology of Dying, Death and Bereavement (3)  
GRNT 4260 Women: Middle Age and Beyond (3)

### History

HIST 1160 U.S. History to 1865 (3)  
HIST 1161 U.S. History Since 1865 (3)  
HIST 2101 American Business History (3)  
HIST 2105 American Slavery and Emancipation (3)  
HIST 2120 American Military History (3)  
HIST 2125 Democracy in America: A Historical Perspective (3)  
HIST 2130 Introduction to Historic Preservation (3)  
HIST 2135 Introduction to Museums and Historic

### Sites (3)

- HIST 2150 U. S. Women's History to 1877 (3)
- HIST 2151 U.S. Women's History since 1877 (3)
- HIST 2155 Southern Women's History (3)
- HIST 2160 African American History, 1400-1860 (3)
- HIST 2161 African American History Since 1860 (3)
- HIST 2297 History of North Carolina, 1500 to the Present (3)
- HIST 3000 Topics in U.S. History (3)
- HIST 3201 Colonial America (3)
- HIST 3202 American Revolution, 1750-1815 (3)
- HIST 3203 The Antebellum U.S., 1800-1860 (3)
- HIST 3211 Civil War and Reconstruction, 1860- 1877 (3)
- HIST 3212 History of the South to 1865 (3)
- HIST 3213 History of the South since 1865 (3)
- HIST 3215 Southerners (3)
- HIST 3218 Racial Violence, Colonial Times to Present (3)
- HIST 3240 African Americans and the Legal Process (3)
- HIST 3241 United States Social History to 1860 (3)
- HIST 3242 United States Social History since 1860 (3)
- HIST 3252 United States in the 20th Century, 1932 to the Present (3)
- HIST 3256 United States Foreign Relations, 1901 to the Present (3)
- HIST 3260 The United States and Latin America (3)
- HIST 3280 Blacks in Urban America (3)
- HIST 3281 American Cities (3)
- HIST 3288 History of the American West (3)
- HIST 4000 Topics in American History (3)

### Music

- MUSC 1104 The History of Rock Music (3)
- MUSC 1105 The Evolution of Jazz (3)

### Philosophy

- PHIL 3130 American Philosophy (3)
- PHIL 3910 Philosophy of War and Peace (3)

### Political Science and Public Administration

- POLS 1110 American Politics (3)
- POLS 2120 Introduction to Public Policy (3)
- POLS 3010 Topics in American Politics or Public Administration (1-4)
- POLS 3103 Public Opinion (3)
- POLS 3104 Mass Media (3)
- POLS 3105 Voting and Elections (3)
- POLS 3108 Social Movements and Interest Groups (3)
- POLS 3109 Political Parties (3)
- POLS 3111 The Congress (3)
- POLS 3112 The Presidency (3)
- POLS 3114 Constitutional Law and Policy (3)
- POLS 3115 Civil Rights and Liberties (3)
- POLS 3116 Judicial Process (3)
- POLS 3119 State and Local Government (3)
- POLS 3121 Urban Politics and Policy (3)

- POLS 3123 Urban Political Geography (3)
- POLS 3124 U.S. Domestic Policy (3)
- POLS 3125 Healthcare Policy (3)
- POLS 3126 Introduction to Public Administration (3)
- POLS 3128 Politics and Film (3)
- POLS 3157 American Foreign and Defense Policy (3)
- POLS 3172 African American Political Philosophy (3)
- POLS 4110 North Carolina Student Legislature (3)

### Religious Studies

- RELS 2108 Religion in American Culture (3)
- RELS 3135 Religion in Nineteenth Century America (3)
- RELS 3137 Religion in the African American Experience (3)
- RELS 3150 African American Church and Civil Rights (3)

### Sociology

- SOCY 2100 Aging and the Lifecourse (3)
- SOCY 2112 Popular Culture (3)
- SOCY 2132 Sociology of Marriage and the Family (3)
- SOCY 2171 Social Problems (3)
- SOCY 3110 American Minority Groups (3)
- SOCY 3132 Sociology of Sport (3)
- SOCY 3173 Criminology (3)
- SOCY 3175 Crowds, Riots, and Disasters (3)
- SOCY 3267 Sociology of Dying, Death, and Bereavement (3)
- SOCY 4110 Sociology of Aging (3)
- SOCY 4112 Sociology of Work (3)
- SOCY 4124 Sociology of the Community (3)
- SOCY 4125 Urban Sociology (3)
- SOCY 4130 Sociology of Health and Illness (3)
- SOCY 4131 Family Policy (3)
- SOCY 4134 Families and Aging (3)
- SOCY 4135 Sociology of Education (3)
- SOCY 4150 Older Individual and Society (3)
- SOCY 4165 Sociology of Women (3)
- SOCY 4168 Sociology of Mental Health and Illness (3)

### Social Work

- SOWK 3120 Diversity and Populations-at-Risk (3)
- SOWK 3201 Foundations of Social Welfare (3)
- SOWK 3202 Social Welfare Policy (3)
- SOWK 4100 Ethnicity and Aging (3)

### Women's and Gender Studies

- WGST 1101 Introduction to Women's Studies (3)
- WGST 2110 Women and the Media (3)
- WGST 2120 African American Women (3)
- WGST 2150 U. S. Women's History to 1877 (3)
- WGST 2251 U.S. Women's History since 1877 (3)
- WGST 3102 Changing Realities of Women's Lives (3)
- WGST 3130 Perspectives on Motherhood (3)
- WGST 3140 Domestic Violence (3)
- WGST 3150 Body Image (3)
- WGST 3160 Gender and Education (3)

WGST 3231 Working Women/Women in Business (3)  
WGST 4130 Female Adolescence in America (3)  
WGST 4165 Sociology of Women (3)  
WGST 4260 Women: Middle Age and Beyond (3)

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# Department of Anthropology

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<http://anthropology.uncc.edu>

Anthropology is the study of humans and their cultures, and the exploration of human diversity in time and space. It is organized into four subfields: cultural anthropology, archaeology, biological anthropology, and linguistics. It emphasizes the comparative study of humans and the cross-cultural analysis of their social and cultural responses to fundamental human needs.

The study of anthropology is relevant for people whose goal is graduate study, as well as for people whose occupations and endeavors require a cross-cultural understanding



of human nature and biology, human history and prehistory, and the variety of cultures humans have developed. It is particularly useful for teachers, medical personnel, social workers, and persons seeking careers in business and communications, as well as persons who plan to work in or with foreign countries. It provides competencies needed for employment in such organizations as museums, government agencies, school systems, corporations, police departments, the Park Service, and healthcare institutions.

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## Bachelor of Arts in Anthropology

A Major in Anthropology leading to the B.A. degree requires completion of 34 credit hours of anthropology coursework.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Foreign Language Requirement

Students majoring in Anthropology must complete either a 2000-level course in a foreign language that uses the Latin alphabet (French, German, Italian, Spanish, etc.) or a 1202-level course in a language that is not written in the Latin alphabet (Greek, Hebrew, Japanese, Russian, etc.), or demonstrate proficiency at

that level. Intermediate American Sign Language is accepted. Non-native speakers of English may complete the foreign language requirement by passing UWRT 1101 and UWRT 1102 or the equivalent.

### Major Courses (16 credit hours)

ANTH 1101 Introduction to Anthropology (3)  
ANTH 2141 Principles of Biological Anthropology (4)  
ANTH 2151 Introduction to Archaeology (3)  
ANTH 3101 Foundations of Anthropological Theory (3)  
ANTH 4601 Seminar in General Anthropology (3) (O, W)

### Restricted Elective Courses (18 credit hours)

Students select ANTH course electives, including at least six credit hours in cultural anthropology.

### Related Courses (18 credit hours)

Also required are 18 credit hours of related work to be arranged in consultation with the student's advisor and organized around a region, an allied discipline, or minor in another approved discipline.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

A GPA of at least 2.0 is required in the 34 hours of anthropology for the major. ANTH 4601 must be completed with a grade of C or above.

### Internships

Students should consult the department concerning internships and field schools in anthropology.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Anthropology with Concentration in Applied Anthropology

The Concentration in Applied Anthropology is designed to equip anthropology majors with the skills needed for a career in applied anthropology, an area with growing employment opportunities. Applied anthropologists work in educational institutions, museums, zoos, health care organizations, non-profits, the business world, and elsewhere. Preparation for a career in applied anthropology involves developing a special set of job skills, in addition to a breadth of anthropological knowledge. Students who pursue a Concentration in

Applied Anthropology complete coursework that will help them develop these skills.

***The Concentration in Applied Anthropology does not require more coursework than the traditional major.*** Instead, it requires specific coursework. Both options require a total of 11 courses/34 hours in anthropology and 18 hours of related work.



### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (25 credit hours)

ANTH 1101 Introduction to Anthropology (3)  
ANTH 2141 Principles of Biological Anthropology (4)  
ANTH 2151 Introduction to Archaeology (3)  
ANTH 3101 Foundations of Anthropological Theory (3)  
ANTH 4111 Applied Anthropology (3) (SL)  
ANTH 4480 Internship in Anthropology (3)  
ANTH 4601 Seminar in General Anthropology (3) (O, W)\*

Plus, select one course in anthropological methods from the list below:

ANTH 4122 Ethnographic Methods (3)  
ANTH 4140 Primate Field Biology (3)  
ANTH 4141 Forensic Anthropology (3)  
ANTH 4453 Field Project in Archaeology (3)  
or other approved course

#### Restricted Elective Courses (9 credit hours)

Select 9 credit hours of ANTH course electives.

#### Related Courses (18 hours)

##### *Quantitative Skills (3 hours)*

Select one of the following:

STAT 1221 Elements of Statistics I (3)  
STAT 1222 Introduction to Statistics (3)  
SOCY 4156 Quantitative Analysis (4)  
or another approved quantitative methods course

##### *Communication Skills (3 hours)*

Select one of the following:

ENGL 2116 Introduction to Technical Communication (3) (W)  
COMM 1101 Public Speaking (3) (O)  
or other approved course

##### *Interdisciplinary Skills (9 hours)*

Select 9 credit hours of coursework outside of anthropology that focuses on a specific topic (e.g.,

health, education, public policy, business, political science, Latin America, Africa, Asia, etc.)

#### *Technical Skills (3 hours)*

Select 3 credit hours that equips students with technical skills necessary in their job area (e.g., advanced language skills beyond 2201, GIS or computer skills, lab skills).

#### **Unrestricted Elective Courses**

As needed.

### **Degree Total = 120 Credit Hours**

#### **Grade Requirement**

A GPA of at least 2.0 is required in the 34 hours of anthropology for the major.

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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### **Minor in Anthropology**

The Minor in Anthropology requires the completion of 18 hours of anthropology.

#### **Minor Requirements**

##### **Required Course (3 credit hours)**

ANTH 1101 Introduction to Anthropology (3)

##### **Elective Courses (15 credit hours)**

15 hours of ANTH electives with at least one course in each of three subdivisions of anthropology: cultural/linguistic anthropology, biological anthropology, and archaeology.

#### **Grade Requirement**

A grade point average of at least 2.0 is required in the 18 hours of anthropology.

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### **Minor in Applied Anthropology**

The goal of the Minor in Applied Anthropology is to train students majoring in other disciplines to incorporate anthropological knowledge and methods into their careers. As such, the applied minor will allow students to focus on the area(s) that interest them the most (instead of introducing students to the four subfields as our traditional minor does). The Minor in Applied Anthropology requires the completion of 18 hours in Anthropology.

#### **Minor Requirements**

##### **Required Courses (9 credit hours)**

ANTH 1101 Introduction to Anthropology (3)

ANTH 4111 Applied Anthropology (3) (SL)

Plus, select one course in anthropological methods from the list below:

ANTH 4122 Ethnographic Methods (3)

ANTH 4140 Primate Field Biology (3)

ANTH 4141 Forensic Anthropology (3)

ANTH 4453 Field Project in Archaeology (3)

#### **Elective Courses (9 credit hours)**

Select 9 credit hours of ANTH course electives.

#### **Grade Requirement**

A grade point average of at least 2.0 is required in the 18 hours of anthropology.



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### **Honors Program in Anthropology**

The Department offers an Honors program in Anthropology to students whose GPA is at least 3.2 overall and 3.5 in anthropology.

#### **Requirements**

To graduate with Honors in anthropology, students must complete the following courses:

ANTH 4601(H) Seminar in General Anthropology

ANTH 4701 Honors Research in Anthropology (3)

an internship or study abroad

two University Honors courses

The honors notation will appear on a student's official transcript. For further information, interested students should consult with the Department Chair.

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# Department of Biological Sciences

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<http://biology.uncc.edu>

The biological sciences are important in many areas of human endeavor encompassing wide-ranging career opportunities in human, dental, and veterinary medicine; allied health professions; education; environment; research; and industry.

## Degree Programs

The Department of Biological Sciences offers undergraduate programs leading to the Bachelor of Arts degree and the Bachelor of Science degree. The B.A. degree provides a firm foundation in the basic principles of biology as background to understanding the biological world, and as preparation for many careers, such as secondary education and medical/pharmaceutical sales; while the B.S. degree provides opportunity for advanced studies in academic or professional programs. The Minor in Biotechnology program is an interdisciplinary program housed within the College of Liberal Arts & Sciences and is designed for Biology and Chemistry majors interested in careers in the biotechnology field. The Minor in Biology is offered for students who desire some experience in biology as an adjunct to their major.



Biology degree programs can be tailored to fit the individual student's needs and interests. Through course selection, the student can emphasize many areas within biology: plant sciences, including horticulture, systematics, and plant physiology and ecology; animal sciences, which include behavior, morphology and physiology; microbial sciences, including virology and microbial physiology; cellular/molecular studies, such as genetics, development, immunology and biotechnology; and environmental sciences, including ecology and evolution. Opportunities for individualized instruction occur at every level from undergraduate research and tutorials with faculty in the Junior and Senior courses to honors research projects in the Senior year.

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## Bachelor of Arts in Biology

The B.A. in Biology is a liberal arts degree intended to provide a broad-based biological background but with enough flexibility to permit students to take more courses in areas of interest other than biology. This is especially good for students interested in teaching in secondary education (junior high and high school), or whose careers may be other than in an area of biology.

### Additional Admission Requirements

Students are eligible to declare a Major in Biology when enrolled in BIOL 2120 or BIOL 2130, and co-enrolled in CHEM 1251 and CHEM 1251L. Students with prior credit earned at UNC Charlotte must have a minimum overall and Biology GPA of 2.0.

### Degree Requirements

A Major in Biology leading to the B.A. degree requires a total of 120 credit hours, including 32 credit hours of Biology. At least 12 hours of Biology credits must be taken at UNC Charlotte. Biology courses at the 1000-level do not count toward major-level credit.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. All Biology majors must take three hours of Writing Intensive (W) coursework in Biology at UNC Charlotte.

### Major Courses (21 credit hours)

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Laboratory (2)  
BIOL 3111 Cell Biology (3)  
BIOL 3111L Cell Biology Laboratory (1)  
BIOL 3144 Ecology (3)  
BIOL 3166 Genetics (3)

### Restricted Elective Courses

#### *Physiology Course (3 credit hours)*

*Select one of the following:*

BIOL 3272 Plant Physiology (3)  
BIOL 3273 Animal Physiology (3)  
BIOL 4272 Comparative Animal Physiology (3)

#### *Evolution-Oriented Course (3-4 credit hours)*

*Select one of the following:*

BIOL 3222 General Botany (3)  
BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 3235 Biology of Insects (3)  
BIOL 3236 General Zoology (3)  
BIOL 4111 Evolution (3)  
BIOL 4235 Mammalogy (4)  
BIOL 4242 Biology of Birds (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4253 Marine Microbiology (4)

BIOL 4260 Population Genetics (3)  
BIOL 4293 Comparative Vertebrate Anatomy (4)

*Note: Additional courses considered upon special request.*

### **Biology Laboratory Courses (3 credit hours)**

Select three biology laboratory courses at or above the 3000-level.

### **Related Courses (18 credit hours)**

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Laboratory (1)  
CHEM 1252 General Chemistry II (3)  
CHEM 1252L General Chemistry II Laboratory (1)  
CHEM 2130 Survey of Organic Chemistry (3)  
or CHEM 2131 Organic Chemistry I (3)  
CHEM 2131L Organic Chemistry I Laboratory (1)  
MATH 1100 College Algebra and Probability (3)  
or MATH 1103 Precalculus Mathematics for  
Science and Engineering (3)  
or MATH 1120 Calculus (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
or STAT 1221 Elements of Statistics I (3)

### **Senior Seminar Course (1 credit hour)**

BIOL 4600 Senior Seminar (1)

### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Grade Requirements**

Enrolling in any Biology course requires a grade of C or above in all prerequisites for that course. Majors must earn a C or above in BIOL 2120 and BIOL 2130 before taking other Biology courses. Any student who earns less than a C may retake the course once, for a total of two attempts. After twice receiving a grade below C in BIOL 2120, BIOL 2130, or BIOL 2140L, students may not enroll in the course again and are ineligible for continuation in bachelor degree programs in Biology. Additionally, students who have two successive semesters with a cumulative GPA in Biology of less than 2.0 are ineligible for continuation in bachelor degree programs in Biology.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Science in Biology**

The B.S. in Biology is recommended for students planning a career in an area of biology, or especially if planning to attend graduate school for a Master's or

Ph.D. degree. B.S. students have the option of designing their course of study to emphasize one subspecialty within the Biological Sciences. They may choose to one of three concentrations: (1) Cell Biology/Physiology, (2) Ecology/Environmental Biology, or (3) Microbiology. Planning for one of the options should be done in consultation with an academic advisor.

### **Additional Admission Requirements**

Students are eligible to declare a Major in Biology when enrolled in BIOL 2120 or BIOL 2130, and co-enrolled in CHEM 1251 and CHEM 1251L. Students with prior credit earned at UNC Charlotte must have a minimum overall and Biology GPA of 2.0.

### **Degree Requirements**

The B.S. in Biology requires a total of 120 credit hours. In addition to the 32 hours of biology required for the B.A. degree, students working toward the B.S. degree are required to take 12 additional hours in biology for a total of 44 hours.

### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program. All Biology majors must take three hours of Writing Intensive (W) coursework in Biology at UNC Charlotte.

### **Major Courses (21 credit hours)**

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Laboratory (2)  
BIOL 3111 Cell Biology (3)  
BIOL 3111L Cell Biology Laboratory (1)  
BIOL 3144 Ecology (3)  
BIOL 3166 Genetics (3)

### **Restricted Elective Courses**

#### **Physiology Course (3 credit hours)**

*Select one of the following:*

BIOL 3272 Plant Physiology (3)  
BIOL 3273 Animal Physiology (3)  
BIOL 4272 Comparative Animal Physiology (3)

#### **Evolution-Oriented Course (3-4 credit hours)**

*Select one of the following:*

BIOL 3222 General Botany (3)  
BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 3235 Biology of Insects (3)  
BIOL 3236 General Zoology (3)  
BIOL 4111 Evolution (3)  
BIOL 4235 Mammalogy (4)  
BIOL 4242 Biology of Birds (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4253 Marine Microbiology (4)  
BIOL 4260 Population Genetics (3)

BIOL 4293 Comparative Vertebrate Anatomy (4)

*Note: Additional courses considered upon special request.*

**Biology Courses (12 credit hours)**

Select 12 additional credit hours of approved BIOL courses.

**Biology Laboratory Courses (2 credit hours)**

Select two biology laboratory courses at or above the 3000-level.

**Related Courses (18 credit hours)**

CHEM 2131 Organic Chemistry I (3)  
CHEM 2131L Organic Chemistry I Lab (1)  
CHEM 2132 Organic Chemistry I (3)  
CHEM 2132L Organic Chemistry II Lab (1)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (3)  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)  
MATH 1120 Calculus (3)  
or MATH 1241 Calculus I (3)  
or equivalent Calculus course  
STAT 1221 Elements of Statistics I (3)  
or equivalent Statistics course

**Senior Seminar Course (1 credit hour)**

BIOL 4600 Senior Seminar (1)

**Unrestricted Elective Courses**

As needed.

**Degree Total = 120 Credit Hours**

**Grade Requirements**

Enrolling in any Biology course requires a grade of C or above in all prerequisites for that course. Majors must earn a C or above in BIOL 2120 and BIOL 2130 before taking other Biology courses. Any student who earns less than a C may retake the course once, for a total of two attempts. After twice receiving a grade below C in BIOL 2120, BIOL 2130, or BIOL 2140L, students may not enroll in the course again and are ineligible for continuation in bachelor degree programs in Biology. Additionally, students who have two successive semesters with a cumulative GPA in Biology of less than 2.0 are ineligible for continuation in bachelor degree programs in Biology.

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

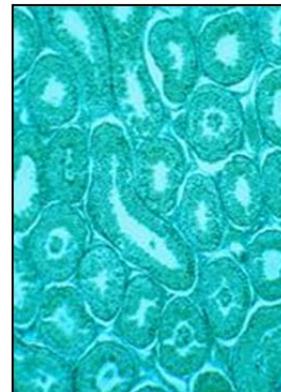
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## Bachelor of Science in Biology with Concentration in Cell Biology/Physiology

The B.S. in Biology is recommended for students planning a career in an area of biology, or especially if planning to attend graduate school for a Master's or Ph.D. degree. B.S.

students have the option of designing their course of study to emphasize one subspecialty within the Biological Sciences. They may choose to one of three concentrations: (1) Cell Biology/Physiology, (2) Ecology/Environmental Biology, or (3) Microbiology.

Planning for one of the options should be done in consultation with an academic advisor.



**Additional Admission Requirements**

Students are eligible to declare a Major in Biology when enrolled in BIOL 2120 or BIOL 2130, and co-enrolled in CHEM 1251 and CHEM 1251L. Students with prior credit earned at UNC Charlotte must have a minimum overall and Biology GPA of 2.0.

**Degree Requirements**

The B.S. in Biology with a Concentration in Cell Biology/Physiology consists of 44 credit hours, including all required courses for a B.S. degree in Biology, plus an approved Physiology lab. The concentration also requires that students choose one course from each of the following topics areas: (1) Subcellular, (2) Structure and Function, and (3) Advanced Physiology.

**General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program. All Biology majors must take three hours of Writing Intensive (W) coursework in Biology at UNC Charlotte.

**Major Courses (21 credit hours)**

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Laboratory (2)  
BIOL 3111 Cell Biology (3)  
BIOL 3111L Cell Biology Laboratory (1)  
BIOL 3144 Ecology (3)  
BIOL 3166 Genetics (3)

**Restricted Elective Courses**

**Physiology Course and Lab (4 credit hours)**

*Select one of the following courses and its*

*corresponding lab:*

BIOL 3272 Plant Physiology (3)  
BIOL 3272L Plant Physiology Lab (1)

BIOL 3273 Animal Physiology (3)  
BIOL 3273L Animal Physiology Lab (1)

BIOL 4272 Comparative Animal Physiology (3)  
BIOL 3273L Animal Physiology Lab (1)

### **Evolution-Oriented Course (3-4 credit hours)**

*Select one of the following:*

BIOL 3222 General Botany (3)  
BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 3235 Biology of Insects (3)  
BIOL 3236 General Zoology (3)  
BIOL 4111 Evolution (3)  
BIOL 4235 Mammalogy (4)  
BIOL 4242 Biology of Birds (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4253 Marine Microbiology (4)  
BIOL 4260 Population Genetics (3)  
BIOL 4293 Comparative Vertebrate Anatomy (4)

*Note: Additional courses considered upon special request.*

### **Concentration Courses (9-10 credit hours)**

#### **Subcellular Elective Course (3 credit hours)**

*Select one of the following:*

BIOL 4171 Cell Physiology (3)  
BIOL 4199 Molecular Biology (3)  
CHEM 4165 Principles of Biochemistry I (3)

#### **Structure and Function Elective Course (3-4 credit hours)**

*Select one of the following:*

BIOL 4250 Microbiology (3)  
BIOL 4265 Drugs: Molecular and Cellular Mechanisms (3)  
BIOL 4293 Comparative Vertebrate Anatomy (4)

#### **Advanced Physiology Elective Course (3 credit hours)**

*Select one of the following:*

BIOL 4251 Immunology (3)  
BIOL 4257 Microbial Physiology and Metabolism (3)  
BIOL 4276 Cardiovascular Physiology (3)  
BIOL 4277 Endocrinology (3)  
BIOL 4279 Neurobiology (3)

*Note: Additional electives may be selected in consultation with an academic advisor.*

### **Related Courses (18 credit hours)**

CHEM 2131 Organic Chemistry I (3)  
CHEM 2131L Organic Chemistry I Lab (1)

CHEM 2132 Organic Chemistry I (3)  
CHEM 2132L Organic Chemistry II Lab (1)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (3)  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)  
MATH 1120 Calculus (3)  
or MATH 1241 Calculus I (3)  
or equivalent Calculus course  
STAT 1221 Elements of Statistics I (3)  
or equivalent Statistics course

### **Senior Seminar Course (1 credit hour)**

BIOL 4600 Senior Seminar (1)

### **Research/Honors Course (3 credit hours)**

Students are encouraged to take one of the following courses under the direction of one of the Cell Biology or Physiology faculty:

BIOL 3900 Undergraduate Research (3)  
BIOL 4700 Honors Research I (3)  
BIOL 4701 Honors Research II (3)

### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Academic Advising**

This course program should be planned in consultation with one of the Cell Biology/Physiology faculty advisors.

### **Grade Requirements**

Enrolling in any Biology course requires a grade of C or above in all prerequisites for that course. Majors must earn a C or above in BIOL 2120 and BIOL 2130 before taking other Biology courses. Any student who earns less than a C may retake the course once, for a total of two attempts. After twice receiving a grade below C in BIOL 2120, BIOL 2130, or BIOL 2140L, students may not enroll in the course again and are ineligible for continuation in bachelor degree programs in Biology. Additionally, students who have two successive semesters with a cumulative GPA in Biology of less than 2.0 are ineligible for continuation in bachelor degree programs in Biology.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

# Bachelor of Science in Biology with Concentration in Ecology/ Environmental Biology

The B.S. in Biology is recommended for students planning a career in an area of biology, or especially if planning to attend graduate school for a Master's or Ph.D. degree. B.S. students have the option of designing their course of study to emphasize one subspecialty within the Biological Sciences. They may choose to one of three concentrations: (1) Cell Biology/Physiology, (2) Ecology/Environmental Biology, or (3) Microbiology. Planning for one of the options should be done in consultation with an academic advisor.

## Additional Admission Requirements

Students are eligible to declare a Major in Biology when enrolled in BIOL 2120 or BIOL 2130, and co-enrolled in CHEM 1251 and CHEM 1251L. Students with prior credit earned at UNC Charlotte must have a minimum overall and Biology GPA of 2.0.

## Degree Requirements

A B.S. degree in Biology with a Concentration in Ecology/Environmental Biology consists of 44 hours of biology, including all required courses for a B.S. degree in Biology. Students also take at least four courses in sub-areas of environmental biology.

## General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. All Biology majors must take three hours of Writing Intensive (W) coursework in Biology at UNC Charlotte.

## Major Courses (21 credit hours)

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Laboratory (2)  
BIOL 3111 Cell Biology (3)  
BIOL 3111L Cell Biology Laboratory (1)  
BIOL 3144 Ecology (3)  
BIOL 3166 Genetics (3)  
BIOL 4121 Biometry (3)

## Restricted Elective Courses

### ***Physiology Course and Lab (4 credit hours)***

*Select one of the following courses and its corresponding lab:*

BIOL 3272 Plant Physiology (3)  
BIOL 3272L Plant Physiology Lab (1)

BIOL 3273 Animal Physiology (3)  
BIOL 3273L Animal Physiology Lab (1)

BIOL 4272 Comparative Animal Physiology (3)

BIOL 3273L Animal Physiology Lab (1)

### ***Evolution-Oriented Course (3-4 credit hours)***

*Select one of the following:*

BIOL 3222 General Botany (3)  
BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 3235 Biology of Insects (3)  
BIOL 3236 General Zoology (3)  
BIOL 4111 Evolution (3)  
BIOL 4235 Mammalogy (4)  
BIOL 4242 Biology of Birds (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4253 Marine Microbiology (4)  
BIOL 4260 Population Genetics (3)  
BIOL 4293 Comparative Vertebrate Anatomy (4)

*Note: Additional courses considered upon special request.*

### **Concentration Courses (12-16 credit hours)**

Select one sub-area below and complete four courses in that area:

#### ***Plant Ecology***

BIOL 3202 Horticulture (3)  
BIOL 3229 Field Botany (3)  
BIOL 3234 Field Entomology (3)  
BIOL 4111 Evolution (3)  
BIOL 4144 Advanced Ecology (4)  
BIOL 4229 Dendrology (4)  
BIOL 4250 Microbiology (3)  
ESCI 4210 Soil Science (4)

#### ***Animal Ecology***

BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 4235 Mammalogy (4)  
BIOL 3234 Field Entomology (3)  
BIOL 4111 Evolution (3)  
BIOL 4144 Advanced Ecology (4)  
BIOL 4234 Wildlife Biology (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4250 Microbiology (3)

#### ***Environmental Assessment***

BIOL 3229 Field Botany (3)  
BIOL 4000 Special Topics in Biology (1-4)  
BIOL 4144 Advanced Ecology (4)  
BIOL 4229 Dendrology (4)  
BIOL 4234 Wildlife Biology (3)  
BIOL 4250 Microbiology (3)  
ESCI 4210 Soil Science (4)  
ESCI 4140 Hydrologic Processes (4)  
ESCI 4155 Fluvial Processes (4)  
BIOL 4274 Environmental Toxicology and Health (3)

### ***Aquatic Ecology***

BIOL 3231 Invertebrate Zoology (4)  
BIOL 4245 Marine Biology (3)  
BIOL 4274 Environmental Toxicology and Health (3)  
BIOL 4144 Advanced Ecology (4)  
BIOL 4250 Microbiology (3)  
CHEM 3111 Quantitative Analysis (4)  
ESCI 4140 Hydrologic Processes (4)  
ESCI 4155 Fluvial Processes (4)

### **Related Courses (21-24 credit hours)**

ESCI 1101 Earth Sciences-Geography (3)  
*(recommended)*  
CHEM 2131 Organic Chemistry I (3)  
CHEM 2131L Organic Chemistry I Lab (1)  
CHEM 2132 Organic Chemistry I (3)  
CHEM 2132L Organic Chemistry II Lab (1)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (3)  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)  
MATH 1120 Calculus (3)  
or MATH 1241 Calculus I (3)  
or equivalent Calculus course  
STAT 1221 Elements of Statistics I (3)  
or equivalent Statistics course

### **Senior Seminar Course (1 credit hour)**

BIOL 4600 Senior Seminar (1)

### **Research/Honors Course (3 credit hours)**

Students are encouraged to take one of the following courses under the direction of one of the Environmental Biology faculty:

BIOL 3900 Undergraduate Research (3)  
BIOL 4700 Honors Research I (3)  
BIOL 4701 Honors Research II (3)

### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Academic Advising**

This course program should be planned in consultation with one of the Ecology/Environmental Biology faculty.

### **Grade Requirements**

Enrolling in any Biology course requires a grade of C or above in all prerequisites for that course. Majors must earn a C or above in BIOL 2120 and BIOL 2130 before taking other Biology courses. Any student who earns less than a C may retake the course once, for a total of two attempts. After twice receiving a grade below C in BIOL 2120, BIOL 2130, or BIOL 2140L, students may not enroll in the course again and are ineligible for continuation in bachelor degree programs in Biology.

Additionally, students who have two successive semesters with a cumulative GPA in Biology of less than 2.0 are ineligible for continuation in bachelor degree programs in Biology.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Science with Concentration in Microbiology**

The B.S. in Biology is recommended for students planning a career in an area of biology, or especially if planning to attend graduate school for a Master's or Ph.D. degree. B.S. students have the option of designing their course of study to emphasize one subspecialty within the Biological Sciences. They may choose to one of three concentrations: (1) Cell Biology/Physiology, (2) Ecology/Environmental Biology, or (3) Microbiology. Planning for one of the options should be done in consultation with an academic advisor.

### **Additional Admission Requirements**

Students are eligible to declare a Major in Biology when enrolled in BIOL 2120 or BIOL 2130, and co-enrolled in CHEM 1251 and CHEM 1251L. Students with prior credit earned at UNC Charlotte must have a minimum overall and Biology GPA of 2.0.

### **Degree Requirements**

A Major in Biology leading to a B.S. degree with a Concentration in Microbiology consists of 44 hours of biology, including all of the required courses for a B.S. degree in Biology and Microbiology-specific coursework.

### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program. All Biology majors must take three hours of Writing Intensive (W) coursework in Biology at UNC Charlotte.

### **Major Courses (21 credit hours)**

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Laboratory (2)  
BIOL 3111 Cell Biology (3)  
BIOL 3111L Cell Biology Laboratory (1)  
BIOL 3144 Ecology (3)  
BIOL 3166 Genetics (3)

### **Restricted Elective Courses (7-8 credit hours)**

#### ***Physiology Course and Lab (4 credit hours)***

*Select one of the following courses and its*

*corresponding lab:*

BIOL 3272 Plant Physiology (3)  
BIOL 3272L Plant Physiology Lab (1)

BIOL 3273 Animal Physiology (3)  
BIOL 3273L Animal Physiology Lab (1)

BIOL 4272 Comparative Animal Physiology (3)  
BIOL 3273L Animal Physiology Lab (1)

### **Evolution-Oriented Course (3-4 credit hours)**

*Select one of the following:*

BIOL 3222 General Botany (3)  
BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 3235 Biology of Insects (3)  
BIOL 3236 General Zoology (3)  
BIOL 4111 Evolution (3)  
BIOL 4235 Mammalogy (4)  
BIOL 4242 Biology of Birds (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4253 Marine Microbiology (4)  
BIOL 4260 Population Genetics (3)  
BIOL 4293 Comparative Vertebrate Anatomy (4)

*Note: Additional courses considered upon special request.*

### **Concentration Courses (24 credit hours)**

BIOL 4250 Microbiology (3)  
BIOL 4250L Microbiology Lab (1)  
BIOL 4257 Microbial Physiology and Metabolism (3)  
BIOL 4251 Immunology (3)  
BIOL 4256 Pathogenic Bacteriology (3)  
BIOL 4255 Bacterial Genetics (3)  
or BIOL 4199 Molecular Biology (3)

### **Concentration Elective Courses (6 credit hours)**

*Select 6 credit hours from the following (at least one of which must include a laboratory):*

BIOL 3900 Undergraduate Research (1-3)  
BIOL 4000 Biotechnology at the Workbench (3)  
BIOL 4000 Host-Parasite Interactions (3)  
BIOL 4000 Immunological Methods (3)  
BIOL 4168 Recombinant DNA Techniques (4)  
BIOL 4233 Parasitology (3)  
BIOL 4255 Bacterial Genetics  
or BIOL 4199 Molecular Biology (*if not taken in the Microbiology Concentration core courses above*)  
BIOL 4258 Epidemics and Plagues (3)  
BIOL 4259 Virology (3)  
BIOL 4292 Advances in Immunology (3)  
BIOL 4700 Honors Research I (3)  
BIOL 4701 Honors Research II (3)

### **Related Courses (21 credit hours)**

CHEM 2131 Organic Chemistry I (3)  
CHEM 2131L Organic Chemistry I Lab (1)

CHEM 2132 Organic Chemistry I (3)  
CHEM 2132L Organic Chemistry II Lab (1)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (3)  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)  
MATH 1120 Calculus (3)  
or MATH 1241 Calculus I (3)  
or equivalent Calculus course  
STAT 1221 Elements of Statistics I (3)  
or equivalent Statistics course

### **Senior Seminar Course (1 credit hour)**

BIOL 4600 Senior Seminar (1)

### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Academic Advising**

This course program should be planned in consultation with one of the Microbiology faculty.

### **Grade Requirements**

Enrolling in any Biology course requires a grade of C or above in all prerequisites for that course. Majors must earn a C or above in BIOL 2120 and BIOL 2130 before taking other Biology courses. Any student who earns less than a C may retake the course once, for a total of two attempts. After twice receiving a grade below C in BIOL 2120, BIOL 2130, or BIOL 2140L, students may not enroll in the course again and are ineligible for continuation in bachelor degree programs in Biology. Additionally, students who have two successive semesters with a cumulative GPA in Biology of less than 2.0 are ineligible for continuation in bachelor degree programs in Biology.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



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## Minor in Biology

A Minor in Biology requires 18 credit hours. Students are responsible for meeting all Biology course prerequisites and corequisites. At least six hours of BIOL courses must be taken at UNC Charlotte.

### Program Requirements

#### Foundation Courses (7-8 credit hours)

Select one sequence below:

BIOL 1110 Principles of Biology I (3)  
BIOL 1115 Principles of Biology II (3)  
BIOL 1110L Principles of Biology I Lab (1)

or

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Lab (2)

#### Restricted Elective Courses (10-11 credit hours)

BIOL courses at the 1000- or 2000-level are acceptable for credit toward the minor. However, at least one 3-credit-hour BIOL course (not necessarily with lab) at or above the 3000-level is required. Two additional laboratory courses are also required.

### Grade Requirements

A GPA of at least 2.0 in the minor is required.

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## Minor in Biotechnology

The Minor in Biotechnology program is an interdisciplinary program housed within the College of Liberal Arts & Sciences and is designed for Biology and Chemistry majors interested in careers in the biotechnology field. To obtain a Minor in Biotechnology, students complete a series of required and optional interdisciplinary courses offered in the Departments of Biology, Chemistry, and Bioinformatics and Genomics, as well as complete a biotechnology-based internship in a regional government, industry, or academic laboratory. Students have some flexibility to choose courses that reflect their specific area of emphasis within the biotechnology field.



Students must have at least an overall GPA of 3.0 and a 3.0 GPA in their major to participate in the program. The number of participating students will be

determined by the number of available internship positions. Students will declare their intention to obtain this Minor by meeting with the Biotechnology Minor Program Head, typically at the beginning of their Junior year. A maximum of nine credit hours applied towards a major degree program can also be applied towards the Minor in Biotechnology.

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## Teacher Education

The Department, in collaboration with the Department of Middle, Secondary, and K-12 Education; offers a program of biology and professional education courses to prepare students for 9-12 teacher licensure in North Carolina. Students interested in biology education should declare this interest during the first semester of the Sophomore year to obtain appropriate advising and prepare for formal admission to a teacher education program. Students should contact the secondary education advisor for teacher education within the Department, as well as the Office of Student Academic Services in the College of Education for information about the requirements for admission to teacher education, coursework, and the culminating student teaching experience. Additional information about teacher education may be found in the College of Education section of this *Catalog*.

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## Honors Program in Biology

The Honors Program is a research program for students majoring in Biology. Students interested in this program and who meet the admissions requirements should contact the Honors Coordinator in the Department of Biological Sciences.

### Admission

Students are invited to participate in the program during their Junior year by the Department Honors Committee. To qualify, students must have completed 60 credit hours, including at least 15 hours at UNC Charlotte. At least 36 of the completed hours must be in science and mathematics. Students must have a 3.2 overall GPA and a 3.4 GPA in BIOL courses to apply to the program. An Honors advisor and a supervisory committee are appointed for each student.

### Required Courses

To graduate with Honors, students must complete the following courses with grades of A:

BIOL 4601 Honors Seminar (2)  
BIOL 4700 Honors Research I (3)  
BIOL 4701 Honors Research II (3)

### Certification Requirements

A cumulative GPA of 3.2 and a GPA of 3.4 or above in BIOL courses must be maintained. An Honors thesis is

required and the student must present the results of their project in an appropriate forum. The honors notation will appear on a student's official transcript.

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## Cooperative Education Program

Students majoring in Biology may obtain practical work experience while pursuing their degrees. The Cooperative Education Program allows qualified students either to alternate semesters of academic study with semesters of full-time work experience or to combine part-time academic study and part-time work during the same semester. Students who are in good standing with the University, have a minimum overall GPA of 2.5, and have completed 30 credit hours are eligible to apply. Transfer students are required to complete 12 credit hours at the University prior to application. The work experience is arranged by the University Career Center and must be approved by the Department of Biological Sciences. Placements are based on a student's academic interests and on the availability of appropriate positions and are carried out under the supervision of a Biology faculty member who serves as co-op advisor. Work semesters are followed by participation in the Biology Cooperative Education Seminar.

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# Department of Chemistry

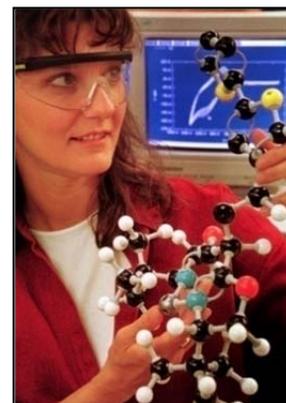
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<http://chemistry.uncc.edu>

Chemistry is a discipline fundamental to a wide variety of careers in industry, research, and the allied health fields. A strong foundation in chemistry is necessary for careers in medicine, molecular biology, biochemistry, industrial or government research, pharmacy, high school teaching, and chemical engineering. A background in chemistry may also be useful for careers in chemical sales, industrial management, business administration, and environmental management.

## Degree Programs

The Department of Chemistry offers two B.S. degree programs approved by the American Chemical Society (ACS), two non-ACS-certified B.S. degree programs and a research-based M.S. degree, which provide the background necessary for a career in industry or for further graduate studies in chemistry and related fields. In addition, a B.A. degree in chemistry is available for students who plan to pursue a career in chemical industry, secondary education, or professional studies in areas such as medicine, dentistry, veterinary medicine, and optometry. A minimum chemistry GPA of 2.0 is required in the B.S. and B.A. degree programs.



## Academic Advising

Students are urged to consult with their academic advisors every semester. Students should work with their academic advisors to develop a long-range plan for academic progress rather than merely selecting courses on a semester-by-semester basis.

## Other Programs

Programs leading to careers in pharmacy and chemical engineering are available in cooperation with other institutions. Please see the "Preparation for Professional Schools" section in this *Catalog* for details.

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## Bachelor of Science in Chemistry

The B.S. degree is recommended for students planning to begin careers as chemists with the

baccalaureate degree and those preparing for graduate study in chemistry.

## Degree Requirements

A Major in Chemistry leading to the ACS-certified B.S. degree consists of a minimum of 46 credit hours of chemistry courses.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (46 credit hours)

- CHEM 1251 General Chemistry I (3)\*
- CHEM 1251L General Chemistry I Lab (1)\*
- CHEM 1252 General Chemistry II (3)\*
- CHEM 1252L General Chemistry II Lab (1)\*  
or CHEM 1253L Introduction to Modern Laboratory Methods (1)
- CHEM 2131 Organic Chemistry I (3)\*
- CHEM 2131L Organic Chemistry I Lab (1)\*
- CHEM 2132 Organic Chemistry II (3)\*
- CHEM 2132L Organic Chemistry II Lab (1)\*  
or CHEM 2136L Organic Chemistry Lab (1)
- CHEM 3111 Quantitative Analysis (4)\*
- CHEM 3141 Physical Chemistry I (3)
- CHEM 3141L Physical Chemistry I Lab (1)
- CHEM 3142 Physical Chemistry II (3)
- CHEM 3142L Physical Chemistry II Lab (1)
- CHEM 3695 Chemistry Seminar (1) (W)
- CHEM 4111 Instrumental Analysis (4)
- CHEM 4121 Advanced Inorganic Chemistry (4)
- CHEM 4133 Methods of Organic Structure Determination (2)
- CHEM 4165 Principles of Biochemistry I (3)\*\*
- CHEM 4695 Chemistry Seminar (1) (O, W)
- CHEM 4696 Chemistry Seminar (1) (O, W)
- CHEM 4900 Directed Undergraduate Research (1-4)  
(two semesters required, culminating in a comprehensive written report)

\*Students may attempt CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, CHEM 2131, CHEM 2131L, CHEM 2132, CHEM 2132L, and CHEM 3111 a total of three times each. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade.

\*\*Students wishing to pursue the non-ACS-certified B.S. degree (with a minimum of 45 credit hours in chemistry) should replace CHEM 4165 with two credits of 4000-level chemistry courses that must be approved by the Department of Chemistry.

### Related Courses (20 credit hours)

#### Mathematics Courses (12 credit hours)

- MATH 1241 Calculus I (3)
- MATH 1242 Calculus II (3)

Plus two of the following:

- MATH 2241 Calculus III (3)
  - MATH 2242 Calculus IV (3)
  - MATH 2164 Matrices and Linear Algebra (3)
  - MATH 2171 Differential Equations (3)
  - STAT 3128 Probability and Statistics for Engineers (3)
- or other department-approved math course

### Physics Courses (8 credit hours)

- PHYS 2101 Physics for Science and Engineering I (3)
- PHYS 2101L Physics for Science and Engineering I Lab (1)
- PHYS 2102 Physics for Science and Engineering II (3)
- PHYS 2102L Physics for Science and Engineering II Lab (1)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

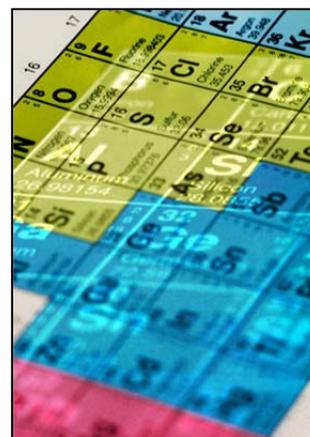
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## Bachelor of Science in Chemistry with Concentration in Biochemistry

### Degree Requirements

A Major in Chemistry leading to the ACS-certified B.S. degree with a Concentration in Biochemistry requires a minimum of 48 credit hours of chemistry courses.

Students wishing to pursue the non-ACS-certified B.S. degree with a Concentration in Biochemistry follow the same requirements as the ACS-certified degree below with the following exceptions: (1) a minimum of 44 credit hours in chemistry are required, and (2) CHEM 4121 is not required.



### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (48 credit hours)

CHEM 1251 General Chemistry I (3)\*  
CHEM 1251L General Chemistry I Lab (1)\*  
CHEM 1252 General Chemistry II (3)\*  
CHEM 1252L General Chemistry II Lab (1)\*  
or CHEM 1253L Introduction to Modern Laboratory Methods (1)  
CHEM 2131 Organic Chemistry I (3)\*  
CHEM 2131L Organic Chemistry I Lab (1)\*  
CHEM 2132 Organic Chemistry II (3)\*  
CHEM 2132L Organic Chemistry II Lab (1)\*  
or CHEM 2136L Organic Chemistry Lab (1)  
CHEM 3111 Quantitative Analysis (4)\*  
CHEM 3141 Physical Chemistry I (3)  
CHEM 3141L Physical Chemistry I Lab (1)  
CHEM 3142 Physical Chemistry II (3)  
CHEM 3142L Physical Chemistry II Lab (1)  
CHEM 3695 Chemistry Seminar (1) (W)  
CHEM 4111 Instrumental Analysis (4)  
or CHEM 4171 Biochemical Instrumentation (4)  
CHEM 4121 Advanced Inorganic Chemistry (4)  
CHEM 4165 Principles of Biochemistry I (3)  
CHEM 4165L Principles of Biochemistry I Lab (1)  
CHEM 4166 Principles of Biochemistry II (3)  
CHEM 4695 Chemistry Seminar (1) (O, W)  
CHEM 4696 Chemistry Seminar (1) (O, W)  
CHEM 4900 Directed Undergraduate Research (1-4)  
*(two semesters required, culminating in a comprehensive written report)\*\**

*\*Students may attempt CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, CHEM 2131, CHEM 2131L, CHEM 2132, CHEM 2132L, and CHEM 3111 a total of three times each. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade.*

*\*\*BIOL 3900 may be substituted for CHEM 4900 with special permission from the Department of Chemistry.*

### Related Courses (31 credit hours)

#### Mathematics Courses (12 credit hours)

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)

*Plus two of the following:*

MATH 2241 Calculus III (3)  
MATH 2242 Calculus IV (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2171 Differential Equations (3)  
STAT 3128 Probability and Statistics for Engineers (3)  
or a department-approved math course

#### Physics Courses (8 credit hours)

PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)  
PHYS 2102 Physics for Science and Engineering II (3)

PHYS 2102L Physics for Science and Engineering II Lab (1)

### Biology Courses (11 credit hours)

*These courses are recommended:*

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology Lab (2)  
BIOL 3111 Cell Biology (3)

### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Chemistry

### Degree Requirements

A Major in Chemistry leading to the B.A. degree consists of a minimum of 32 credit hours of chemistry courses. The B.A. curriculum can be tailored to fit the needs of students preparing for professional schools, a career in chemistry, and secondary teaching licensure.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (32 credit hours)

CHEM 1251 General Chemistry I (3)\*  
CHEM 1251L General Chemistry I Lab (1)\*  
CHEM 1252 General Chemistry II (3)\*  
CHEM 1252L General Chemistry II Lab (1)\*  
or CHEM 1253L Introduction to Modern Laboratory Methods (1)  
CHEM 2125 Inorganic Chemistry (3)  
CHEM 2131 Organic Chemistry I (3)\*  
CHEM 2131L Organic Chemistry I Lab (1)\*  
CHEM 2132 Organic Chemistry II (3)\*  
CHEM 2132L Organic Chemistry II Lab (1)\*  
or CHEM 2136L Organic Chemistry Lab (1)  
CHEM 2141 Survey of Physical Chemistry (3)  
CHEM 3111 Quantitative Analysis (4)\*  
CHEM 3695 Chemistry Seminar (1) (W)  
CHEM 4695 Chemistry Seminar (1) (O, W)  
CHEM 4696 Chemistry Seminar (1) (O, W)

*\*Students may attempt CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, CHEM 2131, CHEM 2131L, CHEM 2132, CHEM 2132L, and CHEM 3111 a total of three times each. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as*

does receiving any letter grade.

### Restricted Elective Courses (3 credit hours)

Select from the following:

- CHEM 3112 Modern Separation Techniques (4)
- CHEM 3113 Survey of Instrumental Methods of Analysis (4)
- CHEM 3141 Physical Chemistry I (3)
- CHEM 3141L Physical Chemistry I Laboratory (1)
- CHEM 3142 Physical Chemistry II (3)
- CHEM 3142L Physical Chemistry II Laboratory (1)
- CHEM 4111 Instrumental Analysis (4)
- CHEM 4121 Advanced Inorganic Chemistry (4)
- CHEM 4133 Methods of Organic Structure Determination (2)
- CHEM 4134 Organic Reaction Mechanisms (2)
- CHEM 4135 Concepts and Techniques in Organic Synthesis (2)
- CHEM 4165 Principles of Biochemistry I (3)
- CHEM 4165L Principles of Biochemistry I Laboratory (1)
- CHEM 4166 Principles of Biochemistry II (3)
- CHEM 4167 Structure and Mechanism in Protein Chemistry (3)
- CHEM 4171 Biochemical Instrumentation (4)
- CHEM 4175 Physical Biochemistry (3)
- CHEM 4200 Computational Chemistry (4)

### Notes:

#### Pre-Professional Studies

Students majoring in Chemistry who are planning future studies in medicine, dentistry, or other allied health professions should choose CHEM 4165 and take as electives BIOL 2120 and BIOL 2130. At least one additional BIOL course at the 3000- or 4000-level is recommended.

#### Careers in Chemical Industry

Students planning to pursue employment in chemical industry or other careers requiring a background in chemistry should choose CHEM 3113 or CHEM 4111 as a chemistry elective.

### Related Courses (14 credit hours)

#### Mathematics Courses (6 hours)

- MATH 1241 Calculus I (3)
- MATH 1242 Calculus II (3)

#### Physics Courses (8 hours)

Select a sequence of four courses from one of the following options:

##### Option 1

- PHYS 1101 Introductory Physics I (3)
- PHYS 1101L Introductory Physics I Lab (1)
- PHYS 1102 Introductory Physics II (3)
- PHYS 1102L Introductory Physics II Lab (1)

##### Option 2

- PHYS 2101 Physics for Science and Engineering I (3)
- PHYS 2101L Physics for Science and Engineering I Lab (1)
- PHYS 2102 Physics for Science and Engineering II (3)
- PHYS 2102L Physics for Science and Engineering II Lab (1)

##### Option 3

- PHYS 2101 Physics for Science and Engineering I (3)
- PHYS 2101L Physics for Science and Engineering I Lab (1)
- PHYS 1102 Introductory Physics II (3)
- PHYS 1102L Introductory Physics II Lab (1)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Chemistry with Teacher Licensure

To meet North Carolina requirements to teach Chemistry at the secondary level (grades 9-12), students must complete a Major in Chemistry and a Minor in Secondary Education. The Major in Chemistry leading to the B.A. degree consists of 32 credit hours in chemistry courses.

### Additional Admission Requirements

Students interested in pursuing teaching licensure should consult an undergraduate advisor in the College of Education's Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) for admission requirements and a detailed planning sheet of their professional education coursework. Licensure applications also are the responsibility of TEALR.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (29 credit hours)

- CHEM 1251 General Chemistry I (3)\*
- CHEM 1251L General Chemistry I Lab (1)\*
- CHEM 1252 General Chemistry II (3)\*
- CHEM 1252L General Chemistry II Lab (1)\*
- CHEM 2125 Inorganic Chemistry (3)
- CHEM 2131 Organic Chemistry I (3)\*
- CHEM 2131L Organic Chemistry I Lab (1)\*

CHEM 2132 Organic Chemistry II (3)\*  
CHEM 2132L Organic Chemistry II Lab (1)\*  
CHEM 2141 Survey of Physical Chemistry (3)  
CHEM 3111 Quantitative Analysis (4)\*  
CHEM 3695 Chemistry Seminar (1) (W)  
CHEM 4695 Chemistry Seminar (1) (O, W)  
CHEM 4696 Chemistry Seminar (1) (O, W)

*\*Students may attempt CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, CHEM 2131, CHEM 2131L, CHEM 2132, CHEM 2132L, and CHEM 3111 a total of three times each. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade.*

### Restricted Elective Courses (3 credit hours)

*Select one of the following:*

CHEM 3112 Modern Separation Techniques (4)  
CHEM 3113 Survey of Instrumental Methods of Analysis (4)  
CHEM 3141 Physical Chemistry I (3)  
CHEM 3141L Physical Chemistry I Laboratory (1)  
CHEM 3142 Physical Chemistry II (3)  
CHEM 3142L Physical Chemistry II Laboratory (1)  
CHEM 4111 Instrumental Analysis (4)  
CHEM 4121 Advanced Inorganic Chemistry (4)  
CHEM 4133 Methods of Organic Structure Determination (2)  
CHEM 4134 Organic Reaction Mechanisms (2)  
CHEM 4135 Concepts and Techniques in Organic Synthesis (2)  
CHEM 4165 Principles of Biochemistry I (3)  
CHEM 4165L Principles of Biochemistry I Laboratory (1)  
CHEM 4166 Principles of Biochemistry II (3)  
CHEM 4167 Structure and Mechanism in Protein Chemistry (3)  
CHEM 4171 Biochemical Instrumentation (4)  
CHEM 4175 Physical Biochemistry (3)  
CHEM 4200 Computational Chemistry (4)

### Related Courses (22 credit hours)

#### **Biology Courses (4 credit hours)**

BIOL 1110 Principles of Biology I (3)  
BIOL 1110L Principles of Biology I Lab (1)

#### **Mathematics Courses (6 credit hours)**

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)

#### **Physics Courses (8 credit hours)**

*Select one of the following options:*

##### **Option 1**

PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (1)  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)

##### **Option 2**

PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)  
PHYS 2102 Physics for Science and Engineering II (3)  
PHYS 2102L Physics for Science and Engineering II Lab (1)

##### **Option 3**

PHYS 2101 Physics for Science and Engineering I (3)  
PHYS 2101L Physics for Science and Engineering I Lab (1)  
PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)

### Geography and Earth Sciences Courses (4 credit hours)

*Select one of the following courses and its corequisite laboratory:*

ESCI 1101 Earth Sciences-Geography (3)  
ESCI 1101L Earth Sciences-Geography Lab (1)  
or  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)

### Minor in Secondary Education (33 credit hours)

For details on required courses, refer to Minor in Secondary Education program.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120-128 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Chemistry

A Minor in Chemistry consists of 23 credit hours of chemistry courses.

### Required Courses (20 hours)

CHEM 1251 General Chemistry I (3)\*  
CHEM 1251L General Chemistry I Lab (1)\*  
CHEM 1252 General Chemistry II (3)\*  
CHEM 1252L General Chemistry II Lab (1)\*  
CHEM 2131 Organic Chemistry I (3)\*  
CHEM 2131L Organic Chemistry I Lab (1)\*  
CHEM 2132 Organic Chemistry II (3)\*  
CHEM 2132L Organic Chemistry II Lab (1)\*  
or CHEM 2136L Organic Chemistry Lab (1)  
CHEM 3111 Quantitative Analysis (4)\*

### Elective Courses (3 hours)

Students select three additional credit hours at the CHEM 2000-level or above. Credit toward the 23 credit hour total will not be given for either CHEM 4695 or CHEM 4900. Special topics courses such as CHEM 3090 may be included with prior departmental approval.

*\*Students may attempt CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, CHEM 2131, CHEM 2131L, CHEM 2132, CHEM 2132L, and CHEM 3111 a total of three times each. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade.*

### Grade Requirement

A minimum GPA of 2.0 in the minor is required.

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## Minor in Biotechnology

The Minor in Biotechnology Program is an interdisciplinary program housed within the College of Liberal Arts & Sciences and is designed for Biology and Chemistry majors interested in careers in the biotechnology field. To obtain a Minor in Biotechnology, chemistry majors must complete a minimum of 18 credit hours.

### Required Courses

BIOL 3161 Introduction to Biotechnology (3)  
BIOL 4405 Internship/Laboratory Research (1-3)  
CHEM 4165 Principles of Biochemistry I (3)  
CHEM 4165L Principles of Biochemistry I Lab (1)  
CHEM 4166 Principles of Biochemistry II (3)  
CHEM 4167 Structure and Mechanism in Protein Chemistry (3)  
or CHEM 4171 Biochemical Instrumentation (4)

### Elective Courses

Students should select at least one of the following biology courses.

BIOL 4000 Special Topics in Biology (1-4)  
BIOL 4162 Advanced Biotechnology I (3) (W)  
BIOL 4163 Advanced Biotechnology II (3)  
BIOL 4168 Recombinant DNA Techniques (4) (W)  
BIOL 4199 Molecular Biology (3)  
BIOL 4244 Conservation Biology (3) (W)  
BIOL 4250 Microbiology (3)  
BIOL 4251 Immunology (3)  
BIOL 4255 Bacterial Genetics (3)  
BIOL 4259 Virology (3)

### Grade Requirement

Students must have at least an overall GPA of 3.0 and a 3.0 GPA in their major to participate in the program.

## Admission Requirements

The number of participating students is determined by the number of available internship positions. Students declare their intention to obtain this minor by registering for the internship course, typically the beginning of their Senior year. A maximum of nine credit hours applied towards a major degree program can also be applied towards the Minor in Biotechnology.

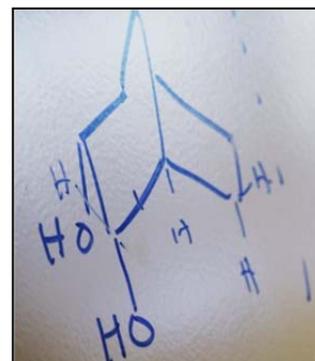
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## Honors Program in Chemistry

This program is intended primarily for chemistry majors. It is a research-oriented program. Details are available from the Department of Chemistry and the department's website at [chemistry.uncc.edu](http://chemistry.uncc.edu).

### Admission

Consideration for admission to the program may be initiated by the student or by any faculty member. The Honors Committee of the Department of Chemistry will formally approve admission. The student will formally enter the Honors Program at the beginning or halfway through the student's Senior year; however, students should inquire about the Honors Program prior to the end of their Junior year.



### Courses

CHEM 4696 Chemistry Seminar (1) (O, W)  
CHEM 4900 Directed Undergraduate Research (1-4)

### Certification Requirements

To obtain Honors in Chemistry, a student must successfully complete at least three hours of CHEM 4900 at the Honors level, one semester of CHEM 4696 at the Honors level, and prepare and successfully defend an Honors thesis based on research. The honors notation will appear on a student's official transcript.

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## Cooperative Education Program

Students majoring in Chemistry may obtain practical work experience in chemistry before graduation by participating in the Chemistry Cooperative Education Experience any time after the completion of Sophomore year and CHEM 2132. A minimum GPA of 2.5 overall and 2.5 in chemistry is required. At least two semesters of full-time work assignments on alternating semesters must be completed concurrent with enrollment in CHEM 3500. Advisors will assist

students to design a schedule that accommodates both work assignments and the upper-division chemistry courses which are normally offered on alternate semesters. Experiences are arranged in coordination with the University Career Center.

## Early Entry: Master of Science in Chemistry

The Early Entry Program for the M.S. in Chemistry leads to completion of all requirements for the B.S. and M.S. degrees in only five academic years and one or two summers. In this program, students complete requirements for the B.S. degree and begin graduate coursework and research in their Senior, or fourth, year. The Chemistry Early Entry Program is accelerated; that is, up to six credit hours may be taken at the graduate level and double counted towards both the undergraduate and graduate degrees. Students may leave the program after four years with the B.S. degree, or they may complete an additional academic year and summer of full-time study and research to earn both the B.S. and M.S. degrees in Chemistry.



### Admission Requirements

B.S. students may be admitted to the M.S. program without entrance examinations if they have a 3.2 overall GPA and at least 3.0 in their chemistry, mathematics, and physics courses, have completed the standard B.S. curriculum through at least Physical Chemistry, and have taken the Graduate Record Examination (GRE). The application process and all the required documentation (e.g., test scores, transcripts, letters of recommendation) are the same for Early Entry students as for other applicants to the program. The status of the accepted Early Entry applicant is provisional pending the award of the baccalaureate degree. Early Entry M.S. students will be expected to complete the requirements for the undergraduate degree by the time they have completed 15 hours of graduate work. Students should consult with the Chemistry M.S. Graduate Coordinator about their eligibility for this program and to discuss requirements for selection of a research advisor during their Junior year.

# Cognitive Science

<http://cognisci.uncc.edu>

Cognitive science is the interdisciplinary study of intelligent systems, both human and artificial. It aims to understand the processes and representations that are the basis for intelligent actions. Research questions center on cognition, memory, problem solving, vision, and their computational embodiment. The interdisciplinary



program in Cognitive Science is designed to provide students with an introduction to the questions of cognitive science and the variety of approaches used to answer those questions, including approaches drawn from Psychology, Computing, Philosophy, Linguistics, and Cognitive Neuroscience. Students completing a minor will add an interdisciplinary perspective to the training received in their major, better preparing them for employment or further study in a variety of sciences and social sciences.

## Minor in Cognitive Science

The Minor in Cognitive Science is awarded only to students completing an undergraduate major at UNC Charlotte. A Minor in Cognitive Science consists of 18 credit hours: three hours of required coursework, nine hours of restricted electives outside of the student's primary major, and the remaining six hours of unrestricted electives. To qualify for the Cognitive Science minor, students must have a GPA of at least 2.0 in courses applied to the minor. Because additions and deletions of courses may be made to correspond to current University offerings, students are encouraged to consult with the Director as they plan their schedules.

### Program Requirements

#### Prerequisite Courses

It is recommended that students take the following prerequisite courses. However, these courses are not part of the minor and they do not count toward the Minor in Cognitive Science.

PSYC 1101 General Psychology (3)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab (0)

### Required Core Course (3 hours)

PSYC 3216 Introduction to Cognitive Science (3)  
or ITCS 3216 Introduction to Cognitive Science (3)

### Restricted Electives\* (minimum 9 credit hours)

Students must take 3 of the following 4 options from courses outside of their major:

#### Option 1 (Computing)

Any ITCS course beyond ITCS 1212  
or ITIS 2300 Web-Based Application Development (3)

#### Option 2 (Linguistics)

ENGL 4167 The Mind and Language (3)  
or ENGL 4263 Linguistics and Language Learning (3)

#### Option 3 (Philosophy)

PHIL 3430 Mind, Cognition, and Behavior (3)  
or PHIL 3510 Advanced Logic (3)

#### Option 4 (Psychology)

PSYC 3115 Sensation and Perception (3)  
or PSYC 3116 Human Cognitive Processes (3)

*\*Students with a Major in Computer Science or Software and Information Systems must fulfill the restrictive electives in Psychology, Linguistics, and Philosophy. Students with a Major in Psychology must fulfill the restrictive electives in Computing, Linguistics, and Philosophy.*

### Unrestricted Electives (6 hours minimum)

ENGL 4161 Modern English Grammar (3)  
ENGL 4167 Mind and Language (3)  
ENGL 4263 Linguistics and Language Learning (3)  
ITCS 3152 Symbolic Programming (3)  
ITCS 3153 Introduction to Artificial Intelligence (3)  
ITIS 3130 Human Computer Interaction (3)  
PHIL 3430 Mind, Cognition, and Behavior (3)  
PHIL 3510 Advanced Logic (3)  
PSYC 3115 Sensation and Perception (3)  
PSYC 3116 Human Cognitive Processes (3)  
PSYC 3122 Cognitive and Language Development (3)  
PSYC 3313 Neuropsychology (3)  
PSYC 4316 Cognitive Neuroscience (3)

### Graduate Studies

A Graduate Certificate in Cognitive Science is also offered through the Graduate School. See the *UNC Charlotte Graduate Catalog* for more details.

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# Department of Communication Studies

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<http://communications.uncc.edu>

The Department of Communication Studies offers



training in the practice and theory of communication across a variety of contexts. Among these are public communication,

health communication, organizational communication, public relations, and media studies. In addition, students examine specific types of communication such as argumentation, debate, and persuasion.

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## Bachelor of Arts in Communication Studies

### Additional Admission Requirements

Students matriculated at UNC Charlotte and planning to change to or declare Communication Studies as their major must have an overall GPA of at least 2.0, met the foreign language requirement for the major, and received no grade less than C in COMM 1101, COMM 2100, and either STAT 1220 or STAT 1222. Students may attempt COMM 2100 a maximum of two times.

Transfer students from other institutions must meet all general requirements for admission to the University. Acceptance into the Communication Studies major requires that they have met the foreign language requirement for the major, and received no grade less than a C in COMM 1101 or its equivalent, COMM 2100 or its equivalent, and either STAT 1220 or STAT 1222.

Matriculated and transfer students who do not meet requirements for admission to the program because of special circumstances may petition the Department of Communication Studies for acceptance into the program.

### Pre-Communication Studies

Students who apply for the Communication Studies major are initially classified as Pre-Communication Studies majors until they meet the following requirements: cumulative GPA of 2.0 or above;



critical analysis of the media as a cultural force. Contemporary issues in media criticism are explored. Students may also receive limited exposure to media production.

#### **Required Concentration Courses**

COMM 3120 Communication and Mass Media (3)  
COMM 4101 Media and the Law (3)

#### **Elective Concentration Courses**

Select six credit hours from the following:

ARTH 3393 History of Photography (3)  
COMM 2120 Black Images in the Media (3)  
COMM 3052 Topics in Mass Media (3)  
COMM 3121 Mass Communication and Society (3)  
COMM 3125 New Media for Communications (3)  
COMM 3126/INTL 3115 Globalization and Digital Media (3)  
COMM 3127 Global Media (3)  
COMM 3880 Independent Study (1-3)\*  
COMM 4102 Federal Interpretation of the First Amendment (3)  
COMM 4410 Professional Internship (3)\*  
ENGL 2106 Film Criticism (4)  
FREN 4050 Topics in French Film (3)  
GERM 3160 Survey of German Films (3)  
HIST 3010 American History and Culture through Film (3)  
JOUR 2160 Introduction to Journalism (3) (W)  
JOUR 3160 Advanced News Reporting and Writing (3)  
JOUR 3161 News Editing (3)  
LACS 3160 European Cinema (3)  
POLS 3104 Mass Media and Government (3)  
RELS 3212 Film and Identity (3)  
SOCY 2112 Popular Culture (3)

*\*with approval of advisor*

#### **Concentration in Organizational Communication (12 credit hours)**

The Organizational Communication concentration is designed for students whose careers will benefit from an understanding of the communication processes that occur within organizational contexts. Students explore both the theory and practice of organizational communication.

#### **Required Concentration Courses**

COMM 3141 Organizational Communication (3)  
COMM 3142 Applications in Organizational Communication (3)  
COMM 4141 Advanced Organizational Communication (3)

#### **Elective Concentration Courses**

Select one of the following:

ANTH 4120 Intercultural Communication (3)

COMM 2105 Small Group Communication (3)  
COMM 2107 Interpersonal Communication (3)  
COMM 3054 Topics in Organizational Communication (3)  
COMM 3160 Business Communication (3)  
COMM 3880 Independent Study (1-3)\*  
COMM 4410 Professional Internship (3)\*  
ENGL 2116 Technical Communication (3)  
PSYC 2171 Introduction to Industrial/Organizational Psychology (3)  
PSYC 3114 Motivation (3)  
SOCY 4112 Sociology of Work (3)

*\*with approval of advisor*

#### **Concentration in Communication and Public Advocacy (12 credit hours)**

The Communication and Public Advocacy concentration is designed for those students desiring a well-developed background in the use, theory, construction, and analysis of public messages. The course of study provides training in individual public communication skills and provides a foundation for the analysis and evaluation of advocacy discourse.



#### **Required Concentration Courses**

COMM 2102 Advanced Public Speaking (3)  
or COMM 2103 Argumentation and Debate (3)  
COMM 3130 Communication and Public Advocacy (3)

#### **Elective Concentration Courses**

Select six credit hours from the following:

COMM 2102 Advanced Public Speaking (3)\*\*\*  
COMM 2103 Argumentation and Debate (3)\*\*\*  
COMM 3051 Topics in Health Communication (3)  
COMM 3052 Topics in Mass Media (3)  
COMM 3054 Topics in Organizational Comm (3)  
COMM 3055 Topics in Public Relations (3)  
COMM 3125 New Media in Communication (3)  
COMM 3126 Globalization and Digital Media (3)  
COMM 3127 Global Media (3)  
COMM 3131 African-American Oratory (3)  
COMM 3403 Debate Practicum (2)\*\*  
COMM 3880 Independent Study (1-3)\*  
COMM 4101 Media and the Law (3)  
COMM 4410 Professional Internship (3)\*

*\*with approval of advisor*

*\*\*may be repeated but no more than 3 hours will apply to meeting this elective requirement*

*\*\*\*may not be used to satisfy both the required concentration course and the elective concentration course*



taken at the 3000-level or above.

ANTH 2010 Topics in Ethnography (3)  
ANTH 2111 Peoples of Africa (3)  
ANTH 2115 Culture and Society in the Middle East (3)  
ANTH 2116 Contemporary Latin America (3)  
ANTH 4120 Intercultural Communications (3)  
COMM 3127 Global Media (3)  
HIST 2200 Asian Civilization (3)  
HIST 2201 History of Modern Asia (3)  
    or INTL 2201 Introduction to Asian Studies (3)  
HIST 2207 Modern Latin America (3)  
    or INTL 2401 Introduction to Latin American  
    Studies (3)  
HIST 2211 Modern Africa (3)  
    or INTL 2101 Introduction to African Studies (3)  
HIST 3116 Twentieth Century Europe, 1913 to the  
    Present (3)  
    or INTL 2301 Introduction to European Studies (3)  
INTL 1101 Introduction to International Studies (3)  
INTL 3000 Topics in International Studies (3)  
POLS 1130 Comparative Politics (3)  
POLS 1150 International Politics (3)  
POLS 3141 European Politics (3)  
POLS 3143 African Politics (3)  
POLS 3144 Latin American Politics (3)  
POLS 3148 Chinese Politics (3)  
POLS 3164 U.S.-Latin American Relations (3)  
POLS 3165 East Asia in World Affairs (3)  
POLS 3169 African International Relations (3)  
SPAN 3029 Cultural Dimensions of Doing Business  
    with Spanish-Speaking Countries (3)



### Foreign Language Requirement (3-4 hours)

Students must complete one additional 2000-level foreign language course beyond the departmental foreign language requirement. The following courses would meet this requirement:

FREN 2202 Intermediate French II (3)  
FREN 2210 Introduction to Business French (3)  
GERM 2202 Intermediate German II (3)  
GERM 2210 German in the Workplace (3)  
ITLN 2202 Intermediate Italian II (3)  
JAPN 2201 Intermediate Japanese I (4)  
PORT 2202 Intermediate Portuguese II (3)

RUSS 2201 Intermediate Russian I (4)  
SPAN 2202 Intermediate Spanish II (3)  
SPAN 2210 Introduction to Spanish for Commerce (3)

International, non-native English speakers must score a minimum of 550 on the TOEFL, a minimum of 85 on the MELAB.

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## Certificate in Leadership Studies

Students electing the Certificate in Leadership Studies may be enrolled in any undergraduate major. In addition to completing the standard core and required track courses for their majors, students must complete 18 credit hours of coursework as listed:

### Required Courses (9 credit hours)

COMM 3135 Leadership Theory and Group Dynamics (3)  
COMM 3136 Leadership, Service and Ethics (3)  
COMM 4410 Professional Internship (3)

### Ethics Courses (3 credit hours)

*One course from the following:*

PHIL 3210 Ethical Theory (3)  
PHIL 3340 Business Ethics (3)  
POLS 3175 Philosophy of Law (3)

### Elective Courses (6 credit hours)

AERO 3101 Leadership and Management (3) (0)  
AERO 3102 Defense Administration and Military  
    Management (3) (0)  
COMM 2105 Small Group Communication (3)  
COMM 2107 Interpersonal Communication (3)  
KNES 1231 Introduction to Outdoor Adventure (2)  
KNES 2236 Challenge Course Activities (2)  
KNES 3230 Wilderness Trip Leading (3)  
KNES 3235 Challenge Course Facilitation (3)  
MGMT 3140 Management and Organizational  
    Behavior (3)  
MGMT 3287 Managerial Leadership (3)  
PSYC 2171 Introduction to Industrial/Organizational  
    Psychology (3)  
POLS 3112 The Presidency (3)  
POLS 4110 North Carolina Student Legislature (3) (0,  
    W)

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## Minor in Communication Studies

The Minor in Communication Studies consists of 18 credit hours of COMM courses.

### Required Courses (6 credit hours)

COMM 1101 Public Speaking (3) (0)  
COMM 2100 Introduction to Communication Theory (3)

### Elective Courses (12 credit hours)

6 credit hours of COMM courses taken at the 3000-level and above

6 credit hours of COMM courses taken at any level

### Grade Requirements

Students matriculated at UNC Charlotte and planning to declare Communication Studies as their minor must have an overall GPA of at least 2.0. Additionally, students must attain an overall GPA of 2.0 in all coursework within the minor.

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## Minor in Journalism

The Minor in Journalism provides an introduction to journalism areas such as writing, editing, feature writing, layout and design, and related communication and media issues. The minor consists of 20 hours of coursework.

### Required Courses (11 credit hours)

JOUR 2100 Language Craft (2)

JOUR 2160 Introduction to Journalism (3) (W)

JOUR 3160 Advanced News Reporting and Writing (3)

JOUR 3162 Feature Writing (3)

### Elective Courses (9 credit hours)

The 9 hours of elective coursework needed to complete the minor may be selected from:

ENGL 4204 Expository Writing (3)

ENGL 4182 Information Design and Digital Publishing (3)

JOUR 3050 Topics in Journalism (3)

JOUR 3161 News Editing (3)

JOUR 3163 Visual Communication in the Media (3)

JOUR 3401 Journalism Practicum (2)

JOUR 4410 Professional Internship (3)\*

ARTG 2181 Graphic Design I (3)

ARTG 3183 Graphic Design II (3)

ARTT 2191 Photographic Media I (3)

COMM 3120 Communication and Mass Media (3)

COMM 3127 Global Media (3)

COMM 3050 Topics in Communication Studies (3)\*

COMM 3880 Independent Study (1-3)\*

COMM 4101 Media and the Law (3)

COMM 4102 Federal Interpretation of the First Amendment (3)

POLS 3103 Public Opinion (3)

POLS 3104 Mass Media (3)

*\*with approval of advisor*

With their advisor's approval, students in the Communication Studies major may count as related coursework any course used to fulfill requirements for the Minor in Journalism as long as that course is not simultaneously being used to fulfill either core or concentration requirements of the major.



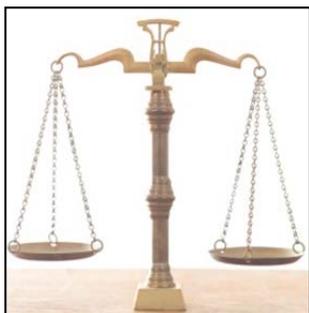
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# Department of Criminal Justice and Criminology

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<http://criminaljustice.uncc.edu>

The undergraduate program in Criminal Justice and Criminology addresses issues confronting the entire criminal justice system, from the nature of crime and delinquency, to society's varied responses to it. A Major in Criminal Justice provides a broad educational



background emphasizing social science and basic knowledge regarding crime and social control. Students at UNC Charlotte learn about crime as a social problem, develop a critical understanding of the criminal justice system, address

problems faced by the victim, and study the principles involved in achieving planned change.

The department also offers a Minor in Criminal Justice and a Master of Science degree program in Criminal Justice. Please see the *UNC Charlotte Graduate Catalog* for details on the M.S. degree.

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## Bachelor of Arts in Criminal Justice

Undergraduate students pursuing the academic study of the criminal justice system, a career in the criminal justice field, or preparation for graduate study may select the criminal justice curriculum leading to a Bachelor of Arts degree.

### Additional Admission Requirements

Current UNC Charlotte students interested in declaring a Major in Criminal Justice need to attend a Declaration of Major Meeting (see department website for specific dates). Completion of CJUS 1100 and STAT 1222, with a C or above in both courses, and a GPA of 2.0 or higher are required to become a major. Applicants must also successfully complete a writing component requirement which is offered several times throughout the year (see department website for specific dates). Criminal Justice majors must declare an approved minor or second major to graduate with a Criminal Justice degree.

Students may enroll in the B.A. program on either a full-time or part-time basis. Evening classes are scheduled to accommodate part-time students. All students must take and pass an upper-level foreign language conversation course.

Transfer students from a North Carolina community college must complete 37 credit hours of criminal justice coursework unless they have completed the equivalents of STAT 1222 (or STAT 1220 or 1221), LACS 2201, CJUS 1100, CJUS 2000, CJUS 2102, CJUS 2120, or CJUS 2154 at another institution. Transfer courses from other institutions will be evaluated on a case-by-case basis. Transfer credit will only be awarded for courses completed with a grade of C or above. Transfer students who have an A.A.S. degree in Criminal Justice will receive General Education exemption and may be awarded up to 15 credit hours of credit for criminal justice coursework completed with a grade of C or above. However, students are required to complete an additional 16 credit hours of upper-level criminal justice coursework at UNC Charlotte after an evaluation of the transcript.

### Degree Requirements

A Major in Criminal Justice requires an introductory statistics course and 31 credit hours of criminal justice courses.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foreign Language Course (3 credit hours)

Criminal Justice majors must satisfy the foreign language requirement by completing a 2201 level foreign language course with a C or above (or a course with emphasis on conversation) in a modern language other than English that uses the Latin alphabet (e.g., French, German, Italian, Portuguese, Spanish) OR the 1202 course (or the equivalent) in a modern language that does not use the Latin alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian). Approved American Sign Language courses may be substituted with permission of the department prior to enrolling in such courses.

### Major Courses (13-15 credit hours)

STAT 1222 Introduction to Statistics (3)  
or STAT 1220 Elements of Statistics I (BUSN) (3)  
or STAT 1221 Elements of Statistics I (3)  
CJUS 1100 Introduction to Criminal Justice (3)  
CJUS 3100 Criminal Justice Theory (3)

*Plus one of the following:*

CJUS 3101 Research Methods in Criminal Justice (4)  
(W)

SOCY 4155 Sociological Research Methods (4)  
and SOCY 4155L Sociological Research Methods  
Lab (0)  
POLS 2220 Political Science Methods (4)  
PSYC 2101 Research Methodology I (3)  
and PSYC 2102 Research Methodology II (3)

### Area Courses (9 credit hours)

*Select one course from each of the following areas:*

#### Law Enforcement Area

CJUS 2000 Introduction to Law Enforcement (3)  
CJUS 3141 Law Enforcement Behavioral Systems (3)  
CJUS 3200 Security and Loss Prevention (3)

#### Corrections Area

CJUS 2154 Introduction to Corrections (3)  
CJUS 3150 Community Corrections (3)  
CJUS 3151 Institutional Corrections (3)  
CJUS 3153 Juvenile Corrections (3)

#### Legal Area

CJUS 3102 American Criminal Courts (3)  
CJUS 3110 Criminal Justice and the Law (3)  
CJUS 3111 Criminal Procedure (3)  
CJUS 3121 Juvenile Law (3)  
CJUS 3152 Correctional Law (3)

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

A minimum of a C average in all criminal justice coursework and at least a grade of C in CJUS 1100, CJUS 3100, CJUS 3101 (or SOCY 4155/SOCY 4155L, POLS 2220, or PSYC 2101/PSYC2103); LACS 2201; and STAT 1222 (or STAT 1220 or STAT 1221) are required.

### Internship

While not required, students are encouraged to participate in internship programs available through the department. Internships provide opportunities to combine theory and practice in a realistic setting, and to make more judicious career decisions.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Honors Program in Criminal Justice

The Honors Program in Criminal Justice identifies the creative, imaginative, and/or exceptional student and encourages and recognizes the development of this student's potential. The Honors Program in Criminal Justice encourage independent study and shall evaluate each student's achievement in terms of her or his ability to proceed as a self-directed learner. Students must have a 3.2 GPA overall and a 3.5 GPA in the Criminal Justice major. The honors notation will appear on the student's official transcript.

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## Minor in Criminal Justice

A Minor in Criminal Justice is available to all undergraduates except Criminal Justice majors and requires 18 approved credit hours.

### Program Requirements

#### Required Courses (6 hours)

CJUS 1100 Introduction to Criminal Justice (3)  
CJUS 3100 Criminal Justice Theory (3)

#### Elective Courses (12 hours)

Select 12 credit hours of upper-division CJUS electives at the 3000- and 4000-level.

### Grade Requirements

A GPA of at least 2.0 in CJUS courses is required to graduate, including at least a grade of C in CJUS 1100 and CJUS 3100.



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# Department of English

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<http://english.uncc.edu>

The Department of English endeavors to provide students with the intellectual skills that lead to:

- excellent written and verbal communication skills,
- an awareness of and respect for diverse ideas and viewpoints,
- the ability to analyze and understand complex ideas and texts,
- experience in inventing drafting, editing, and publishing both printed and electronic texts,
- a knowledge of the history of spoken language, written literature, rhetoric, and communication technology,
- the ability to collaborate on complex research and writing tasks.

One of our graduates' most valuable skills is the ability to understand and analyze complexity and ambiguity. Having developed an aptitude to devise innovative solutions to challenging problems, our undergraduates have pursued advanced degrees in literature, law, medicine, teaching, and administration. Others students generate careers for themselves in any number of fields including business, banking, advertising, public relations, and technical/professional writing.

Our graduate students go on to pursue similar careers, but their advanced degrees give them additional opportunities for professional recognition and advancement. Our Master's students have been successful in their pursuit of the Ph.D., as well as positions in professional writing, teaching, and administration. Please see the *UNC Charlotte Graduate Catalog* for details on graduate programs.

## Awards

The Department gives awards each spring (usually to Senior English majors). These include: the Margaret Bryan Award for excellence in scholarship; the Gray's Creative Writing Awards; the Julian Mason Award for excellence in the study of Southern literature; the Glenn Burne award for excellence in Children's Literature Scholarship; the Garland Keever Memorial Award for humorous writing; the Kay Horne Public Service Award; The Blair Rudes Award for Excellence in Linguistics; and the Robert M. Wallace Award for excellence in the study of English. The Department also sponsors the Loch Walker Writing Competition annually.

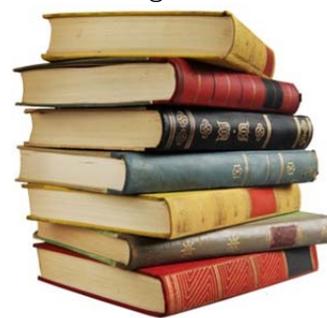
## Writing Assistance

The Writing Resources Center and The Writing Project are available to students who want to become more effective writers, as well as to those studying to be K-12 writing teachers, respectively. For more information, please see the University Writing Programs listing in the *Student Life, Resources, and Services* section of this *Catalog*.

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## Bachelor of Arts in English

A Major in English leading to the B.A. degree consists of 36 credit hours of coursework beyond the General Education requirements. Students may also elect a Concentration from one of four areas: Creative Writing; Language and Digital Technology; Literature and Culture; or Pedagogy.



## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foreign Language Courses

Competency in a foreign language at the intermediate level, certified either through placement exam or coursework at the 2000-level, is required.

### Foundation Course (3 credit hours)

COMM 1101 Public Speaking (3) (O)

### Major Courses (36 credit hours)

At a minimum, majors must complete 36 credit hours in English, including 12 credit hours at the 4000-level. No more than 12 credit hours in ENGL at the 2000-level may be counted toward the major. At least 3 credit hours are required in a departmentally designated "D" (Diversity) course\*.

English Majors not electing a specific Concentration must complete two designated courses from each of the following areas:

- Creative Writing
- Language and Digital Technology
- Literature and Culture

\*A "D" designates an ENGL diversity offering as defined by the department, including offerings approved for the Minor in Diverse Literatures and Cultural Studies. Such offerings include coursework in world literature, African American literature and

culture, American Indian literature and culture, Latino/Latina literature and culture, women's studies, gender and sexuality studies, as well as selected courses in language and digital technology or pedagogy. The following courses may also be designated "D" with approval: ENGL 2090, ENGL 2200, ENGL 2201, ENGL 3201, ENGL 3050, ENGL 3852, ENGL 4050, ENGL 4090, ENGL 4150, ENGL 4151, ENGL 4153, and ENGL 4852.

### Minor Courses (18 credit hours)

The English major also requires completion of either a minor established at UNC Charlotte or an individually designed course of study consisting of a minimum of 18 credit hours in coursework selected from English and/or other departments, approved by the student's Department of English advisor and undergraduate coordinator. Students with a second major in another department will be considered to have satisfied the minor requirement.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Additional Information

Students admitted to the English major prior to Fall 2013 must choose to graduate under the requirements of either the *2012-2013 Undergraduate Catalog* or the current *Undergraduate Catalog*. Students admitted to the English major during and after Fall 2013, will graduate under the current *Undergraduate Catalog*. Students admitted to the English major prior to Fall 2013 may fulfill the requirements for ENGL 2400, ENGL 2401, and ENGL 2402 by successful completion of approved courses in early and modern British Literature and an approved course in American Literature.

### Grade Requirements

A GPA of 2.0 or above in all English courses above the 1000-level is required for graduation.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Arts in English with Concentration in Creative Writing

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (21 credit hours)

##### *Introductory Creative Writing Courses (6 credit hours)*

Select two of the following:

- ENGL 2125 Creative Writing Laboratory (3)
- ENGL 2126 Introduction to Creative Writing (3) (W)
- ENGL 2127 Introduction to Poetry (3)
- ENGL 2128 Introduction to Fiction Writing (3)
- ENGL 2200 Contemporary Literature (3)
- ENGL 2201 Contemporary Poetry (3)
- ENGL 2202 Contemporary Fiction (3)

##### *Intermediate Creative Writing Course (3 credit hours)*

Select one of the following:

- ENGL 3201 Intermediate Poetry Writing (3)
- ENGL 3202 Intermediate Fiction Writing (3)

##### *Advanced Creative Writing Courses (6 credit hours)*

Select two of the following from two different genres:

- ENGL 4202 Writing Poetry (3)
- ENGL 4203 Writing Fiction (3)
- ENGL 4206 Creative Nonfiction (3) (W)
- ENGL 4208 Poetry Writing Workshop (3)
- ENGL 4209 Fiction Writing Workshop (3)
- ENGL 4290 Advanced Creative Project (3) (O)

##### *Literature Distribution Requirements (6 credit hours)*

Select Literature Distribution Requirements from approved courses in two of five categories:

- 1) Pre-1800 British Literature
- 2) Post-1800 British Literature
- 3) Pre-1900 American Literature
- 4) Post-1900 American Literature
- 5) Children's Literature

#### Restricted Elective Courses (15 credit hours)

Students select fifteen additional credit hours in ENGL courses at the 2000-level or above.

#### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Bachelor of Arts in English with Concentration in Language and Digital Technology

## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (12 credit hours)

ENGL 3162 Language and the Virtual World (3)  
ENGL 3180 Language and Digital Technology (3)

ENGL 4182 Information Design and Digital Publishing (3)  
or ENGL 4183 Editing with Digital Technologies (3)\*

ENGL 4168 Multimodality and Text Description (3)  
or ENGL 4267 Identity, Social Interaction, and Community in Digital Spaces (3)\*

*\*Remaining courses not taken as a Major Course may be taken as a Concentration Course.*

### Concentration Courses (15 credit hours)

Select five of the following:

ENGL 2116 Introduction to Technical Writing (3)  
ENGL 2161 Grammar for Writing (3)  
ENGL 3132 Introduction to Contemporary American English (3)  
ENGL 3267 Vocabulary, Etymology, and Grammar (3)  
ENGL 4008 Topics in Technical Writing (3)  
ENGL 4160 Origins of Language (3)  
ENGL 4161 Modern English Grammar (3)  
ENGL 4165 Multiculturalism and Language\* (3)  
ENGL 4167 The Mind and Language (3)  
ENGL 4181 Writing and Designing User Documents (3)  
ENGL 4204 Expository Writing (3)  
ENGL 4235 History of the Book (3)  
ENGL 4260 History of Global Englishes (3)\*  
ENGL 4262 Language and Diversity (3)\*  
ENGL 4263 Linguistics and Language Learning (3)  
ENGL 4270 Studies in Writing, Rhetoric and Literacy (3)\*  
ENGL 4272 Studies in The Politics of Language and Writing (3) (W)  
ENGL 4273 Studies in Writing, Rhetoric, and Identity (3) (W)\*

ENGL 4274 Visual Rhetoric (3) (W)  
ENGL 4275 The Rhetoric of Technology (3) (W)  
ENGL 4277 Digital Literacies (3)  
ENGL 4400 Theory and Practice of Tutoring Writing (3)  
ENGL 4405 Literacy and Language (3)  
ENGL 4410 Professional Internship (3)

*\*Courses are designated Department of English Diversity "D" courses.*

### Restricted Elective Courses (9 hours)

Select nine additional credit hours in ENGL courses at the 2000-level or above.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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# Bachelor of Arts in English with Concentration in Literature and Culture

## Degree Requirements

### General Education Courses (37-43 credit hours)

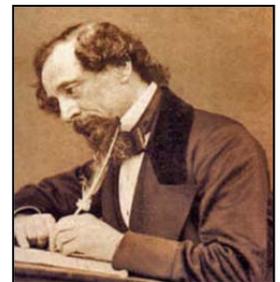
For details on required courses, refer to the General Education program.

### Major Courses (6 credit hours)

ENGL 2100 Writing about Literature (3) (W)  
ENGL 3100 Approaches to Literature (3) (W)

### Concentration Courses (12 credit hours)

Students must satisfy the each of the following distribution requirements. Transfer courses will be considered, but only two courses at the 2000-level will be credited toward these distribution requirements. Approved alternatives at the 4000-level can be used to satisfy this requirement.



### British Literature Before 1800

Select one of the following:

ENGL 3211 Medieval Literature (3)  
ENGL 3212 British Renaissance Literature (3)

ENGL 3213 British Literature of the Restoration and 18th Century (3)

### **British Literature After 1800**

Select one of the following:

ENGL 3214 Romantic British Literature, 1785-1832 (3)

ENGL 3215 British Victorian Literature (3)

ENGL 3216 British Literature in Transition, 1870-1914 (3)

ENGL 3217 Modern British Literature (3)

### **American Literature Before 1900**

Select one of the following:

ENGL 3231 Early African American Literature (3)\*

ENGL 3232 Early American Literature (3)

ENGL 3233 American Literature of the Romantic Period (3)

ENGL 3234 American Literature of the Realist and Naturalist Periods (3)

### **American Literature After 1900**

Select one of the following:

ENGL 3235 Modern American Literature (3)

ENGL 3236 African American literature, Harlem Renaissance to present (3)\*

ENGL 3237 Modern and Recent U.S. Multiethnic Literature (3)\*

\*Courses are designated Department of English Diversity "D" courses.

### **Concentration Elective Courses (9 credit hours)**

Select nine credit hours in ENGL courses at the 2000-level or above from an approved list that includes any courses in literature and culture.

### **Restricted Elective Courses (9 credit hours)**

Select nine additional credit hours in ENGL courses at the 2000-level or above.

### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Arts in English with Concentration in Pedagogy**

### **Degree Requirements**

**General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

### **Major Courses (33 credit hours)**

ENGL 2400 American Literature Survey (3)

ENGL 2401 British Literature Survey I (3)  
or ENGL 2402 British Literature Survey II (3)  
or ENGL 2403 British Literature Survey (3)

ENGL 3100 Approaches to Literature (3) (W)

ENGL 3104 Adolescent Literature (3)

ENGL 4254 Teaching English/ Communication Skills to Middle and Secondary School Learners (3)

ENGL 4200 Teaching of Writing (3) (W)

ENGL 4201 Teaching of Multi-Ethnic Literature (3) (W)  
or an approved course in multi-ethnic literature\*

### **World Literature Course**

Select one of the following:

ENGL 4111 Ancient World Literature (3)\*

ENGL 4112 Modern World Literature (3)\*

or an approved course in World Literature at the 2000-level or above

### **Shakespeare Course**

Select one of the following:

ENGL 4116 Shakespeare's Early Plays (3)

ENGL 4117 Shakespeare's Late Plays (3)

or an approved alternative

### **Writing and Rhetoric Course**

Select two of the following:

ENGL 4270 Studies in Writing, Rhetoric, and Literacy (3) (W)

ENGL 4271 Studies in Writing, Rhetoric, and New Media (3) (W)

ENGL 4272 Studies in The Politics of Language and Writing (3) (W)

ENGL 4273 Studies in Writing, Rhetoric, and Identity (3) (W)\*

ENGL 4400 Theory and Practice of Tutoring Writing (3) (W)

\*Courses are designated Department of English Diversity "D" courses.

### **Restricted Elective Courses (6 credit hours)**

Select six additional credit hours in ENGL courses at the 2000-level or above.

### **Teacher Licensure**

Students who elect the Pedagogy Concentration seeking Teacher Licensure must complete a Minor in Secondary Education. Students in the Pedagogy Concentration who are not seeking teacher licensure may substitute other approved courses at 3000-level or above for Adolescent Literature, World Literature, and Teaching English/Communication Skills to Middle and Secondary School Learners.

## Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Minor in English

Students who do not major in English but plan to take courses in English, for pleasure or in order to build their skills with language, should consult the department about the possibility of a Minor in English, Children's Literature and Childhood Studies, Diverse Literatures and Cultural Studies, Linguistics, or Technical/Professional Writing.



## Program Requirements

A Minor in English consists of 18 hours in English at the 2000-level or above.

### Minor Courses (6 credit hours)

ENGL 2100 Writing About Literature (3)  
ENGL 3100 Approaches to Literature (3)

### Restricted Elective Courses (12 credit hours)

Select four ENGL courses, of which at least six credit hours are at the 3000-level or above.

## Grade Requirements

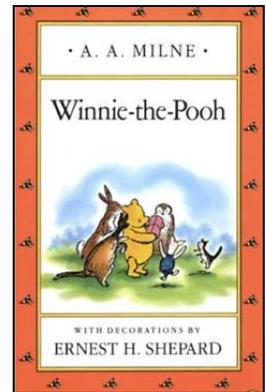
A GPA of 2.0 or above in all English courses taken is required for graduation.

*Note: The Department of English allows English majors who minor in Children's Literature and Childhood Studies, Diverse Literatures and Cultural Studies, Linguistics, or Technical/Professional Writing to count only two courses from the minor toward fulfillment of the major degree requirements.*

## Minor in Children's Literature and Childhood Studies

The Minor in Children's Literature and Childhood Studies (CLCS) provides students with an opportunity to study children's literature within the context of the interdisciplinary field of childhood studies. The minor

recognizes that the academic study of children's literature is intrinsically linked to other disciplines that focus on particular aspects of childhood. In addition to taking courses in children's literature, students participating in this minor select courses pertaining to such child-related topics as language acquisition, child psychology, education, juvenile law, pediatric nursing, and the history and culture of childhood.



## Program Requirements

The Minor in Children's Literature and Childhood Studies consists of 18 credit hours at the 2000-level and above.

### Children's Literature Courses (9 credit hours)

ENGL 3103 Children's Literature

*Plus two of the following:*

ENGL 2090 Disney and Children's Literature  
ENGL 3102 Literature for Young Children  
ENGL 3104 Literature for Adolescents  
ENGL 4102 Classics in British Children's Literature  
ENGL 4103 Classics in American Children's Literature  
ENGL 4104 Multiculturalism and Children's Literature

### Child-Related Courses (9 credit hours)

*Select three of the following\*:*

AMST 3210 Childhood in America (*recommended*)  
ANTH 2090 Topics in Anthropology (*related to CLCS*)  
CHFD 2111 Child Study: Interpreting Children's Behavior  
CHFD 2113 Infant and Early Years  
CHFD 2115 Education of the Young Child  
CJUS 2120 Juvenile Justice  
CJUS 3153 Juvenile Corrections  
EDUC 2100 Introduction to Education and Diversity in Schools (3)  
or EDUC 1100 Foundations of Education and Diversity in Schools - Prospect Curriculum (4)  
EDUC 2150 Human Development Across the Life Span  
ENGL 4263 Linguistics and Language Learning  
MUSC 2191 Incorporating Music into the Elementary Classroom  
NURS 2200 Human Growth and Development  
PHIL 3940 Philosophy of Education  
PSYC 2120 Child Psychology  
PSYC 2121 Adolescent Psychology  
SOCY 2132 Sociology of Marriage and the Family  
SPED 2100 Introduction to Students with Special Needs

THEA 4160 Theatre for Youth  
WGST 3130 Perspectives on Motherhood

*\*At least 6 hours must be in courses that do not focus on children's literature. Other courses that do not appear on the list, especially topics and independent study courses, may be approved if they pertain to child-related topics.*

*Notes: The Department of English allows English majors who minor in Children's Literature and Childhood Studies, Diverse Literatures and Cultural Studies, Linguistics, or Technical/Professional Writing to count only two courses from the minor toward fulfillment of the major degree requirements.*

*Students majoring in Elementary Education may not apply any of their required professional education courses toward this minor.*

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## Minor in Diverse Literatures and Cultural Studies

The Minor in Diverse Literatures and Cultural Studies provides students with an opportunity to study literatures and cultures in more contexts and forms of diversity. Students explore the ways in which the academic study of diverse literatures and cultures is linked to other disciplines that focus on particular aspects of diversity. Students may select from a wide range of courses in African American Literature and Culture, Africana Studies, American Indian Literature and Culture, Anthropology, Latino/Latina Literature and Culture, Women's and Gender Studies, and History.

### Program Requirements (18 credit hours)

The Minor in Diverse Literatures and Cultural Studies consists of 18 credit hours at the 2000-level and above.

### Required Courses (9 credit hours)

ENGL 2100 Writing About Literature (3)

*And one of the following:*

ENGL 2301 Introduction to African American Literature

ENGL 3050 Introduction to American Indian Literary Studies

ENGL 3050 U.S. Latino/Latina Writers

ENGL 4104 Multicultural Children's Literature

Students must also take one additional course in Diverse Literatures and Cultural Studies offered by the Department of English.

### Elective Courses (9 credit hours)

For the remaining 9 hours, students select courses pertaining to topics in Diverse Literatures and Cultural

Studies from an approved distribution list (see below). Other courses that do not appear on the list, especially topics courses and independent study courses, may be approved if they pertain to diversity-related topics.

### **African American Literature**

*Select one course:*

ENGL 3050 Early Black American Literature (3)\*

ENGL 3157 Twentieth-Century Black American Literature: Prose (3)

ENGL 3158 Gender in African American Literature (3)

ENGL 3159 African American Poetry (3)

### **Gender and Sexuality**

*Select one course:*

AMST 4050 Multicultural Women Writers Imagining America (3)\*

ENGL 4002 Women and Literature (3)

ENGL 4050 Modernism, Gender, and Sexuality (3)\*

ENGL 4050 Multicultural Women Writers Imagining America (3)\*

HIST 2151 U.S. Women's History since 1877 (3)

WGST 2050 Introduction to Lesbian and Gay Studies (3)\*

WGST 2050 Women of the Middle East (3)\*

WGST 2120 African American Women (3)

WGST 4050 Queer Theory (3)\*

WGST 4120 Women's Studies International (3)

### **Diversity Subject Area**

*Select one course:*

AFRS 2105 Black Images in the Media in the U.S. (3)

AFRS 2120 African American Women (3)

AFRS 2160 The African American Experience through Civil War (3)

AFRS 2161 The African American Experience: Civil War to Civil Rights (3)

AFRS 2215 Black Families in the United States (3)

AFRS 3101 Perspectives on Race and Ethnicity in the U.S. (3)

AFRS 3158 Gender and African-American Literature (3)

AFRS 3179 African American Political Philosophy (3)

AFRS 3240 African Americans and the Legal Process (3)

AFRS 3280 Blacks in Urban America (3)

AMST 3000 Appalachian Literature and Culture (3)\*

ANTH 2112 North American Indians (3)

ENGL 3050 American Indian Fiction and Community (3)\*

ENGL 3050 American Indian Women's Literature (3)\*

ENGL 3050 Jewish Identity and the Graphics Novel (3)\*

ENGL 3050 Linguistic Diversity in North America (3)\*

ENGL 4050 American Indian and Children's Literature (3)\*

ENGL 4111 Ancient World Literatures (3)

ENGL 4112 Modern World Literatures (3)

- HIST 2000 Topics in U.S. History: American Indian History 1400-Present (3)\*  
 HIST 2000 Topics in U.S. History: Latino/a History (3)\*  
 HIST 2150 U.S. Women's History to 1877 (3)  
 HIST 2160 African American History, 1400-1680 (3)  
 HIST 2161 African American History Since 1860 (3)

*\*The topics courses must be approved with the permission of the undergraduate coordinator.*

*Note: The Department of English allows English majors who minor in Children's Literature and Childhood Studies, Diverse Literatures and Cultural Studies, Linguistics, or Technical/Professional Writing to count only two courses from the minor toward fulfillment of the major degree requirements.*

## Minor in Linguistics

An interdisciplinary Minor in Linguistics provides students with an opportunity to study linguistics within an interdisciplinary context. This minor recognizes that the academic study of linguistics is linked to other disciplines that focus on particular aspects of language as the object of study. Students participating in this minor select from a range of courses in Anthropology, English, Computer Sciences, Communication Studies, Cognitive Science, Languages and Culture Studies, Philosophy, and Teaching English as a Second Language.

### Program Requirements (18 credit hours)

The Minor in Linguistics consists of 18 credit hours of coursework at the 2000-level and above.

#### Core Course (3 hours)

- ENGL 3132 Introduction to Contemporary American English (3)

#### English Elective Courses (9 hours)

*Select three courses from the following:*

- ENGL 2161 Grammar for Writing (3)  
 ENGL 3162 Language and the Virtual World (3)  
 ENGL 3267 Vocabulary, Grammar, and Etymology (3)  
 ENGL 4061 Approaches to Discourse (3)  
 ENGL 4160 Origins of Language (3)  
 ENGL 4161 Modern English Grammar (3)  
 ENGL 4165 Multiculturalism and Language (3)  
 ENGL 4167 The Mind and Language (3)  
 ENGL 4168 Multimodality and Text Description (3)  
 ENGL 4260 History of Global Englishes (3)  
 ENGL 4262 Language and Diversity (3)  
 ENGL 4263 Linguistics and Language Learning (3)  
 ENGL 4267 Identity, Social Interaction, and Community in Digital Spaces (3)  
 ENGL 4405 Literacy and Language (3)

Other courses that do not appear on the above list, especially special topics courses and independent study courses, may be approved by the Applied Linguistics coordinator if they pertain to language study.



### Language Study Elective Courses (6 hours)

*Select two courses from other departments approved for the minor pertaining to language study:*

- ANTH 2161 Introduction to Linguistic Anthropology (3)  
 ANTH 4120 Intercultural Communications (3)  
 ITCS 3688 Computers and their Impact on Society (3) (O, W)  
 PHIL 3420 Philosophy of Language (3)  
 PHIL 3430 Mind, Cognition, Behavior (3)  
 PHIL 3510 Advanced Logic (3)  
 PSYC 3122 Cognitive and Language Development (3)  
 PSYC 3216 Introduction to Cognitive Science (3)  
 PSYC 4316 Cognitive Neuroscience (3)  
 SPAN 4231 Spanish Phonetics (3)  
 SPAN 4232 Spanish Linguistics (3)  
 SPAN 4233 History of the Spanish Language (3)  
 TESL 4204 Inclusive Classrooms for Immigrant Students (3)  
 TESL 4300 Second Language Development in K-12 Classrooms  
 TESL 4600 Literacy Development for Second Language Learners (3)  
 TRAN 3401 Introduction to Translation Studies (3)

*Note: The Department of English allows English majors who minor in Children's Literature and Childhood Studies, Diverse Literatures and Cultural Studies, Linguistics, or Technical/Professional Writing to count only two courses from the minor toward fulfillment of the major degree requirements.*

## Minor in Technical/Professional Writing

### Program Requirements (21 credit hours)

The Minor in Technical/Professional Writing consists of 21 credit hours of coursework.

#### Required Courses (12 credit hours)

- ENGL 3180 Language and Digital Technology (3)  
 ENGL 4410 Professional Internship (3)

Also required are two courses above the 1000-level in a technical or scientific discipline that cannot also count towards General Education Requirements.

### **Elective Courses (9 credit hours)**

The remaining courses can be selected from the following:

- ENGL 4008 Topics in Advanced Technical Communication (3)
- ENGL 4181 Writing and Designing User Documents (3)
- ENGL 4182 Information Design and Digital Publishing (3)
- ENGL 4183 Editing with Digital Technologies (3)

Students may request permission to take other appropriate courses from the Coordinator of the Technical/Professional Writing Program.

*Note: UWRT 1101 and UWRT 1102 (or UWRT 1103); and ENGL 2116 are prerequisites for courses in the minor. Students should declare the minor before trying to enroll in ENGL 2116 to assure a place in the course.*

*Note: The Department of English allows English majors who minor in Children's Literature and Childhood Studies, Diverse Literatures and Cultural Studies, Linguistics, or Technical/Professional Writing to count only two courses from the minor toward fulfillment of the major degree requirements.*

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## **Teacher Licensure in English**

Students seeking licensure to teach English in grades 9-12 should consult with their advisors in the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education regarding education courses that are required for licensure. Such students must fulfill all the requirements of the English major and the following additional requirements and expectations: at least 39 hours in English above the 1000-level with a GPA of at least 2.75 for those courses taken at UNC Charlotte; and a GPA of at least 2.75 for all courses taken at UNC Charlotte.

Required courses are: ENGL 2100 (and/or additional approved coursework in writing), 3100; ENGL 3132; ENGL 3104; two 2000- or 3000-level survey courses in British literature, one in American literature; one additional course focusing on language or literacy above the 2000-level (starting Fall 2010: ENGL 4405 Literacy and Language); ENGL 4254; a course in World Literature at the 2000-level or above; ENGL 4116 or 4117 (or an approved 4000-level course in Shakespeare); one course in minority literature(s) (ENGL 2301, 3157, 3158, 3159, 4104, 4155, or an

approved special topic course in multicultural literature(s) such as ENGL 3050), and one elective at the 4000-level.

Also required, and not counted toward the 39 hours of English coursework, are COMM 1101 and competency in a foreign language at the intermediate level. Students who complete the requirements for teaching licensure must have a minor in Secondary Education. Students should consult early with their departmental advisors in English and Education regarding these requirements and expectations. Licensure applications are the responsibility of the student and the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.

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# Film Studies

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<http://filmstudies.uncc.edu>

The interdisciplinary Minor in Film Studies is designed to allow students to develop knowledge of film and video as an art form while fulfilling the requirements for one of the approved degree programs at the University. The College of Liberal Arts & Sciences courses that satisfy the minor represent different aspects of film and video art: (1) Culture, (2) History, (3) Theory, and (4) Production.



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## Minor in Film Studies

The Minor in Film Studies requires the completion of 18 hours of approved courses.

### Required Course (3 hours)

FILM 2201 Introduction to Film Studies (3)

### Elective Courses (15 hours)

At least five additional courses representing at least three of the departments offering the minor. Courses that satisfy the minor are as follows:

AFRS 2105 Black Images in the Media in the U.S. (3)

ARTM 3105 Video Art (3)

COMM 3050 Topics in Communication Studies: Film (3)

ENGL 2106 Film Criticism (3)

ENGL 3050 Topics in English: Film (3)

FILM 3050 Topics in Film (3) (W)

FILM 3051 Topics in Film (3)

FILM 3120 Fundamentals of Video/Film Production (3)

FREN 3050 Topics in French: Film (3)

GERM 3160 Survey of German Film (3) (O, W)

HIST 3010 History and Culture through Film, Non-Western (3)

HIST 3011 History and Culture through Film (3)

LACS 3160 European Cinema (3) (O, W)

RELS 3212 Religion and Film (3) (W)

THEA 2640 Playwriting/Screenwriting (3)

THEA 4001 Topics in Theatre (Fundamentals of Film Production and other topics) (3) (W)

In addition, topics courses offered by American Studies and departments not presently associated with the Minor in Film Studies may be applied to the minor upon approval of the Director.

Students may elect as one of their courses an internship that focuses on a video or film project in any of the participating departments. Students who choose this option will sign up under the internship course number of the department that seems most appropriate. If no department designation is available, students will sign up for FILM 4410 (Professional Internship in Film Studies).

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# Department of Geography and Earth Sciences

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<http://geoearth.uncc.edu>

The Department of Geography and Earth Sciences is a cross-disciplinary unit offering different but related programs of study. Geography emphasizes the locational aspects of human activities as they are distributed over the Earth. Earth and Environmental Sciences include the study of the hydrosphere, atmosphere, biosphere, and surficial materials, and the interactions between those systems with humans. Geology examines the composition, history, and structure of the whole Earth. Meteorology provides a rigorous study of the fundamental atmospheric processes that lead to weather and climate. A unique advantage of the Department's interdisciplinary curriculum is that all four programs of study are inter-related in many ways. For example, a geography student interested in land use planning might gain important experience and knowledge from coursework in soil science or hydrology. An Earth and Environmental Sciences major might better understand soil formation and chemical weathering with courses in petrology and optical mineralogy. Emphasis in one area should not preclude class work or interest in another. In fact, this type of interdisciplinary work is often critical to the student's program of study.



## Geography

The Geography curriculum is oriented toward the concepts and methodologies of social science that stress the importance of location. Geography is the study of spatial variation – of how things vary from place to place on the surface of the earth; how places

are connected to each other, and the factors that shape how places interact and change over time.

Geography is studied at many levels, from the local to the global, and from many perspectives (i.e., social, cultural, political, economic, and environmental). Conceptual treatment of geographic issues deal with urbanization; globalization; migration; sustainability; patterns of land use; transportation systems; the flow of goods, services, and information; business location; planning for the natural and built environment; and human-environmental interaction in both urban and rural settings. Special emphasis is placed on how these factors shape our world, the places where we live and work, and the ways in which we interact. Geographic analysis involves information technology; mapping and statistical analysis; social area analysis; remote sensing and satellite imagery; and especially the use of Geographic Information Systems (GIS). A host of courses prepare students in both the concepts and methods of contemporary spatial analysis. The department also leads the interdisciplinary Minor in Urban Studies. Geography majors find careers in urban and regional planning, cartography, GIS applications and development, marketing research, transportation planning, real estate development, and teaching. While a wide range of career options are available to undergraduate geography majors, graduate studies provide additional options. For details, see the *UNC Charlotte Graduate Catalog* regarding the M.A. in Geography program.

## Earth and Environmental Sciences

The Earth and Environmental Sciences program focuses on the suite of dynamic processes acting at or near the surface of the Earth. Study spotlights the composition and dynamics of the atmosphere, biosphere, hydrosphere and/or surficial materials including environmental applications of these fields of study. Coursework covers areas such as environmental geology, hydrology, remote sensing, surfaces processes, soil science, and Environmental Information Systems. This program also offers Concentrations in Hydrologic, Atmospheric, or Environmental Sciences, which provide students the opportunity to be recognized for more focused academic work.

Students majoring in Earth and Environmental Sciences pursue careers in environmental consulting, environmental planning, meteorology, land development planning, site analysis, terrain analysis, and teaching. This degree also prepares students for graduate studies in hydrology and remote sensing. There are employment opportunities in both government and private industry with the greatest range of positions available to students who earn graduate degrees. For details, see the *UNC Charlotte*

*Graduate Catalog* regarding the M.S. in Earth Sciences program.

## Geology

The Geology program examines the entire Earth as a dynamic natural system by focusing on its composition, history and structure. Students pursuing a B.S. degree take coursework in areas of Earth Sciences and Geology such as mineralogy, geochemistry, structural geology, hydrogeology, sedimentology, stratigraphy, petrology, and optical mineralogy.

Students majoring in Geology pursue careers in geotechnical engineering, environmental consulting, mining, oil and gas exploration, site analysis, and teaching. Students should seek advising for guidance toward courses that meet the requirements for North Carolina Licensure as a Professional Geologist and/or Soil Scientist. There are employment opportunities in both government and private industry with the greatest range of positions available to students who earn graduate degrees. For details, see the *UNC Charlotte Graduate Catalog* regarding the M.S. in Earth Sciences program.

## Meteorology

The Meteorology program focuses on the atmosphere. Students pursuing the B.S. degree take courses describing and explaining processes in the atmosphere, with traditional coursework in synoptic, dynamic, physical and boundary layer meteorology. Ancillary coursework in oceanography, applied climatology, and air quality modeling are also available. Students majoring in meteorology pursue employment in weather forecasting – private and public, air quality, climatology or atmospheric research. Students majoring in meteorology pursue employment in government with the National Weather Service or through service in the United States Air Force and careers in industry either through broadcasting or with consulting companies and public utilities.

## Facilities

The Department of Geography and Earth Sciences is housed in modern, well-equipped facilities. Extensive rock, mineral and fossil holdings are available for instructional purposes. The optical mineralogy laboratory features high-quality petrographic microscopes linked with image analysis and cathodoluminescence systems. Analytical facilities also include a geochemical sample preparation laboratory, a plasma emission spectrometer, IC, TOC/TN, Microwave Digestion, XRD, XRF, ICP-MS analytical units, and rapid sediment analyzers. The petrology lab employs a precision thin section machine and an automated photomicrography unit that is attached to a research-grade polarizing microscope. A

proton magnetometer and ground penetrating radar systems are available for ground-based field surveys. Frequent field trips are facilitated by the Department's vans, extensive field instruments and camping gear.

The atmospheric-hydrology laboratories house the Department's Meteorology Data Acquisition System (McIDAS), a geographic information systems package that provides "real time" meteorological data via links to weather satellites. Stream gauges, ground water monitoring equipment, and soil analysis instruments are on hand for use in fluvial processes, hydrogeology, and soils labs.

Students have access to a Departmental computer lab equipped with networked Macintosh and PC workstations, a file server, and printer. These facilities are networked to other labs on campus and to the University's Novell servers. A separate geographic information system (GIS) and remote sensing lab houses PC and Unix workstations, digitizers, and a large format color inkjet plotter. ArcGIS, ArcView and Erdas software packages run on the workstations and are used to support courses in GIS, remote sensing and image processing, and spatial decision support systems. The Department also maintains a large collection of geographically-referenced data for use by students and staff in the lab. These data sets include satellite imagery, U.S. Census Bureau files, and U.S. Geological Survey map data, as well as locally-developed data sets.

The UNC Charlotte Cartography Laboratory has earned a national reputation for its high quality production cartography. This cutting edge facility contains high-end Macintosh workstations, one 1200 dpi scanner, a 35 mm slide scanner and a slide processing unit, high-resolution laser printers and a large format color printer. Software include Adobe Illustrator, Photoshop, PageMill, Authorware, Director, PowerPoint, and Astound.

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## Bachelor of Arts in Geography

A Major in Geography leading to a B.A. degree consists of 40 hours in Geography and Earth Sciences coursework.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (21 credit hours)

- GEOG 1101 World Regional Geography (3)
- GEOG 1103 Spatial Thinking (4)
- GEOG 1105 Location of Human Activity (3)
- GEOG 1110 Introduction to Planning (3)

GEOG 2110 Introduction to Geographic Research (3)  
GEOG 4600 Professional Seminar (1)  
ESCI 1101 Earth Science-Geography (3)  
ESCI 1101L Earth Science-Geography Lab (1)

#### Restricted Elective Courses (19 credit hours)

Except for required courses, the B.A. degree requires 19 hours of elective coursework numbered 2000 or above, with at least six hours in coursework at the 4000-level. Up to three elective courses may be selected from courses with the ESCI, GEOL, and METR prefix. Students are encouraged to take additional coursework in related disciplines or to select a second major.

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



## Bachelor of Science in Geography

A Major in Geography leading to a B.S. degree consists of 49 credit hours of Geography and Earth Sciences and at least six credit hours of extra-departmental coursework (55 credit hours total).

#### Degree Requirements

##### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

##### Major Courses (31 credit hours)

GEOG 1101 World Regional Geography (3)  
GEOG 1103 Spatial Thinking (4)  
GEOG 1105 Location of Human Activity (3)  
GEOG 1110 Introduction to Planning (3)

GEOG 2110 Introduction to Geographic Research (3)  
GEOG 3120 Fundamentals of Geographic Information Systems (4)

GEOG 4600 Professional Seminar (1)  
ESCI 1101 Earth Science-Geography (3)  
ESCI 1101L Earth Science-Geography Lab (1)  
ENGL 2116 Introduction to Technical Communication (3)

MATH or STAT course above MATH 1103 (3) (*STAT 1221 or STAT 1222 strongly suggested*)

#### Restricted Elective Courses (18 credit hours)

Select 18 credit hours of elective GEOG coursework at the 3000 or above level. Up to three elective courses may be selected from courses with the ESCI, GEOL, and METR prefix.

*Note: this Elective Course requirement does not apply to students in the Concentration in GIScience and Technology.*

#### Concentration Courses (13-16 credit hours)

Although students pursuing a B.S. in Geography are not required to declare a concentration, formal concentrations within the major include Urban, Social, and Economic Geography; Urban and Regional Planning; and GIScience and Technology. Other plans of study may be developed; students should contact their advisors to develop a program of study that matches their career objectives. Students should work closely with their academic advisors to ensure that their program of study is tailored to their career goals.

#### *Concentration in Urban, Social, and Economic (USE) Geography (14 hours)*

From the local to the global, patterns of urban growth and development connect people to each other, their communities, and their work at every scale of life. Accordingly, this concentration emphasizes how cities grow, how urban populations change, how urban areas interact with one another as well as the implications of these transitions and interactions at the local, regional and international levels. Coursework is tailored to student interest and typically involves foundational courses in urban, social, and economic dynamics; population, migration, and labor studies; poverty, inequality, and housing; transportation and locational analysis; and global and globalizing cities and the impacts of globalization at all geographic scales. Through classroom and research-based activities, students become grounded in the theory and methods of applied geographical analysis in an increasingly interdependent world that: (1) informs stakeholders and the general public; (2) prepares them for careers in the public and private sectors with consultancies, non-profit agencies, international business, think tanks, transnational organizations, while; (3) preparing them for further academic study. Specific coursework for

this Concentration in Urban, Social, and Economic Geography is developed in consultation with the student's advisor.

### ***Concentration in Urban and Regional Planning (14 credit hours)***

Planners solve social and environmental problems in the built environment by translating knowledge into action. Planners work across cultural and disciplinary boundaries to create healthy, just, and sustainable communities. Therefore, the Concentration in Urban and Regional Planning supplies students with a trans-disciplinary perspective on major societal issues. Specific areas of instruction include land use, transportation and infrastructure, social justice, urban design, environmental preservation, and analytical methods. Knowledge, skills, and methods gained from the Concentration in Urban and Regional Planning afford students with opportunities for successful careers in public, private, and non-profit organizations. The concentration also prepares students for graduate studies in planning, geography, policy studies, and associated fields. Students in the Concentration in Urban and Regional Planning should select their courses in consultation with their advisor.

### ***Concentration in GIScience and Technology (13-16 hours)***

The Concentration in GIScience and Technology (GIS) focuses on the acquisition, representation, analysis, modeling and dissemination of geospatial information with cutting-edge computer technologies. Emphasis is placed on both fundamentals of GIScience concepts, and building expert knowledge in the use of geospatial technologies such as GIS, remote sensing, spatial analysis and modeling, database development and management, programming, Web GIS, and geovisualization. Students benefit from systematic training through technical and applied GIS coursework taught by GIScience faculty. Graduates with a Concentration in GIScience and Technology find themselves well-prepared to start a career in a geographic information technology field. Career opportunities have been growing fast as GIScience in high demand in a wide range of professions, including GIS analysts, GIS developers, cartographers, urban and city planners, location analysts, transportation planners and natural resource specialists. Strong connections between the department and local and state agencies offer excellent opportunities to help students achieve their career goals. Students pursuing the Concentration in GIScience and Technology are urged to select their courses in consultation with their advisor to develop an appropriate program of study in this rapidly evolving field to ensure it is tailored to their career goals.

### ***Foundation Course (4 credit hours)***

GEOG 2102 Introduction to Cartographic Design (4)

### ***GIS Technique Courses (6-8 credit hours)***

Select two of the following:

GEOG 4103 Computer Programming for GIS Applications (3)

GEOG 4180 Web GIS (3)

GEOG 4150 Spatial Database Development with GPS and GIS (4)

ESCI 4180 Digital Image Processing in Remote Sensing (4)

### ***GIS Application Courses (3 credit hours)***

Select one of the following:

GEOG 3260 Medical Geography (3)

GEOG 4131 Environmental Modeling with GIS (4)

GEOG 4132 GIS Spatial Modeling for Social and Economical Applications (4)

GEOG 4140 Geographic Information Techniques for Community Planning (4)

GEOG 4155 Retail Location (3)

ESCI 4170 Fundamentals of Remote Sensing (4)

GEOG 4265 Transportation Analysis Methods (3)

### ***GIS Elective Courses (18 credit hours)***

Select at least 13 credit hours of additional GIS-related coursework from the courses listed above and an additional 2 to 5 hours in elective courses at the 3000 or above level, for a total of 18 credit hours.

### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Teacher Licensure in Geography**

The Department of Geography and Earth Sciences, in collaboration with the College of Education and the Department of Middle, Secondary, and K-12 Education, offers a program of geography and professional education courses to prepare students for a North Carolina (9-12) teaching license. Students interested in teaching social studies in the public schools should declare this interest during the first semester of the Sophomore year to obtain appropriate advising and prepare for formal admission to the Minor in Secondary Education. Students should contact the advisor for teacher education within the Department, as well as the Office of Teacher Education Advising, Licensure and Recruitment (TEALR) in the College of Education, for information about the requirements for

admission to teacher education, coursework, and the culminating student teaching experience. Additional information about teacher education may be found in the College of Education section of this *Catalog*.

### Course Requirements

Students seeking teacher licensure in Comprehensive Social Studies must complete the requirements for the B.A. in Geography, including 17 hours in required coursework and 19 elective hours.

Licensure in Comprehensive Social Studies requires an additional 18 hours consisting of:

- HIST 1160 U.S. History to 1865 (3)
- HIST 1161 U.S. History Since 1865 (3)
- HIST 1121 European History Since 1660 (3)
- HIST 2000 Topics in U.S. History (3) or above (one Topics Course: Africa, Asia, or Latin America)
- POLS 1110 American Politics (3)
- POLS 1130 Comparative Politics (3)  
or POLS 1150 International Politics (3)

### Grade Requirements

In addition to requirements set by the College of Education, students must have earned a GPA of 2.5 or above in all social studies courses for admission to student teaching and ultimately for licensure.

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## Minor in Geography

A Minor in Geography consists of 19 credit hours.

### Required Courses (10 hours)

- GEOG 1101 World Regional Geography (3)
- GEOG 1105 Location of Human Activity (3)
- ESCI 1101 Earth Science-Geography (3)
- ESCI 1101L Earth Science-Geography Lab (1)

### Elective Courses (9 hours)

The minor electives can be tailored to support a number of majors, such as architecture, business, computer science, and political science.

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## Minor in Urban Studies

For details on the Minor in Urban Studies, please refer to the Urban Studies heading later in the College of Liberal Arts & Sciences section of this *Catalog*.

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## Bachelor of Arts in Environmental Studies

A Major in Environmental Studies leading to a B.A. degree consists of a minimum of 53 credit hours of required Earth Science (ESCI), Geology (GEOL), Geography (GEOG), and extra-departmental courses, and 16 hours of elective coursework. Students are

responsible for meeting the course prerequisites for all extra-departmental coursework.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (37 credit hours)

- ESCI 1101 Earth Science-Geography (3)
- ESCI 1101L Earth Science-Geography Lab (1)
- ESCI 2101 The Environmental Dilemma (3)
- ESCI 4600 Earth Sciences Seminar (1)
- GEOG 1105 The Location of Human Activity (3)
- GEOG 2103 Elements of GIScience & Technologies (4)
- GEOG 3215 Environmental Planning (3) (W)
- GEOG 4215 Urban Ecology (3)
- GEOL 1200 Physical Geology (3)
- GEOL 1200L Physical Geology Lab (1)
- GEOL 3190 Environmental Geology (3)

*Select one of the following:*

- ESCI 2210 Field Methods in the Earth and Environmental Sciences (3)
- GEOG 2110 Introduction to Geographic Research (3)

*Select one of the following:*

- ECON 4181 Energy and Environmental Economics (3)
- GEOG 3220 Renewable Energy and Regional Energy Markets (3)
- GEOL 3105 The Earth's Mineral Resources: Sustainability and the Environmental Impacts of Recovery (3)

*Statistics Course*

*Select one of the following:*

- STAT 1220 Elements of Statistics I (BUSN) (3)
- STAT 1221 Elements of Statistics I (3)
- STAT 1222 Introduction to Statistics (3)

#### Restricted Elective Courses (16 credit hours)

Sixteen credit hours of elective coursework may be selected from additional ESCI, GEOL, and GEOG courses, plus any of the following extra-departmental courses:

- BIOL 3144 Ecology (3)
- BIOL 3144L Ecology Laboratory (1) (W)
- PHIL 3520 Philosophy of Science (3)
- STAT 2223 Elements of Statistics II (3)

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



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## Bachelor of Arts in Environmental Studies: Secondary Teaching Option

Students preparing to teach high school earth science may become licensed by earning the B.A. in Environmental Studies degree including the Secondary Teaching Option.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (30 credit hours)

ESCI 1101 Earth Sciences-Geography (3)  
ESCI 1101L Earth Sciences-Geography Lab (1)  
ESCI 2101 The Environmental Dilemma (3)  
ESCI 3105 Oceanography (3)  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)  
GEOL 1210 Earth History (3)  
GEOL 1210L Earth History Lab (1)  
GEOL 3115 Mineralogy (4)  
GEOL 3190 Environmental Geology (3)  
GEOL 3190L Environmental Geology Lab (1)  
GEOG 2103 Elements of GIScience and Technologies (4)

#### Restricted Elective Courses (11 credit hours)

Select 11 elective credit hours from ESCI courses, of which at least 4 hours are at the 3000 level or above.

#### Related Courses (20 credit hours)

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
MATH 1241 Calculus I (3)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (3)  
PHYS 1130 Introduction to Astronomy (3)

PHYS 1130L Introduction to Astronomy (1)  
Plus one additional physical or life science elective

### Minor in Secondary Education

Students must have a Minor in Secondary Education to obtain teaching licensure. See the College of Education section of this *Catalog* for details on the requirements for the minor.

Licensure applications are the responsibility of the student and the Teacher Education Advising, Licensure, and Recruitment (TEALR) Office in the College of Education.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Earth and Environmental Sciences

A Major in Earth and Environmental Sciences leading to a B.S. degree consists of a minimum of 64 credit hours of required and elective coursework. The General Degree consists of 22 hours of required Earth Science (ESCI), Geography (GEOG), and Geology (GEOL) courses, 18 hours of required extra-departmental coursework, and 24 hours of elective courses.

Concentrations in Atmospheric Sciences, Environmental Sciences, and Hydrologic Sciences are also available with their own individual degree requirements.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (22 credit hours)

ESCI 1101 Earth Science-Geography (3)  
ESCI 1101L Earth Science-Geography Lab (1)  
ESCI 2101 The Environmental Dilemma (3)  
ESCI 2210 Field Methods in the Earth and Environmental Sciences (3)  
ESCI 3101 Global Environmental Change (3)  
ESCI 4600 Earth Sciences Seminar (1)  
GEOG 3120 Fundamentals of Geographic Information Systems (4)  
GEOL 1200 Physical Geology (3)

GEOL 1200L Physical Geology Lab (1)

**Related Courses (18 credit hours)**

CHEM 1251 Principles of Chemistry (3)  
CHEM 1251L Principles of Chemistry Lab (1)  
MATH 1241 Calculus I (3)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (1)

*Mathematics and Statistics Courses*

*Select one of the following:*

MATH 1242 Calculus II (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 1221 Elements of Statistics I (3)  
STAT 1222 Introduction to Statistics (3)

*Science and Lab Courses*

*Select one of the following:*

CHEM 1252 Principles of Chemistry (3)  
and CHEM 1252L Principles of Chemistry Lab (1)  
PHYS 1102 Introductory Physics II (3)  
and PHYS 1102L Introductory Physics II Lab (1)

**Restricted Elective Courses (24 credit hours)\***

Select 24 credit hours from the list of Earth and Environmental Sciences electives below or other required courses from the Concentrations in Atmospheric, Environmental, or Hydrological Sciences of the B.S. in Earth Sciences degree.

BIOL 3215 Economic Botany (3) (W)  
BIOL 4162 Environmental Biotechnology I (3)  
BIOL 4163 Environmental Biotechnology II (3)  
CEGR 3143 Hydraulics and Hydrology (3)  
ESCI 3170 Environmental Quality Management (3)  
ESCI 3180 Environmental Impact Analysis (3)  
ESCI 4160 Contaminant Transport (3)  
ESCI 4180 Digital Image Processing in Remote Sensing (4)  
ESCI 4210 Soil Science (4)  
ESCI 4233 Geoenvironmental Site Characterization (4)  
GEOG 3215 Environmental Planning (3) (W)  
GEOG 3250 World Food Problems (3)  
GEOG 4216 Landscape Ecology (3)  
GEOL 3120L Geochemistry Lab (1)  
GEOL 3124 Sedimentology (4) (W)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4120 Geologic Mapping and Interpretation (4)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4140 Coastal Geology (3)  
GEOL 4165 Aqueous Geochemistry (4)  
GEOL 4175 Geochemistry (3)  
GEOL 4410 Applied Soil Science (4)  
METR 3250 Dynamic Meteorology (4)  
METR 3252 Weather Analysis Lab (1)  
METR 4150 Applied Climatology (3) (W)  
METR 4240 Boundary-Layer Meteorology (3)

*\*Students are responsible for meeting all required prerequisites for elective courses.*

**Unrestricted Elective Courses**

As needed.

**Degree Total = 120 Credit Hours**

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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**Bachelor of Science in Earth and Environmental Sciences with Concentration in Atmospheric Sciences**

The B.S. in Earth Sciences with a Concentration in Atmospheric Sciences consists of a minimum of 39 hours of required Earth Science (ESCI), Geography (GEOG), Meteorology (METR) and Geology (GEOL) courses, 18 credit hours of required extra-departmental coursework, and 7 hours of elective courses.

**Degree Requirements**

**General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

**Major Courses (22 credit hours)**

ESCI 1101 Earth Science-Geography (3)  
ESCI 1101L Earth Science-Geography Lab (1)  
ESCI 2101 The Environmental Dilemma (3)  
ESCI 2210 Field Methods in the Earth and Environmental Sciences (3)  
ESCI 3101 Global Environmental Change (3)  
ESCI 4600 Earth Sciences Seminar (1)  
GEOG 3120 Fundamentals of Geographic Information Systems (4)  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)

**Concentration Courses (17 credit hours)**

ESCI 4170 Fundamentals of Remote Sensing (4)  
METR 3140 Introduction to Meteorology and Climatology (3)  
METR 3210 Atmospheric Thermodynamics (3)  
METR 3220 Physical Meteorology (3)  
METR 3245 Synoptic Meteorology (4)

**Related Courses (18 credit hours)**

CHEM 1251 Principles of Chemistry (3)  
CHEM 1251L Principles of Chemistry Lab (1)

MATH 1241 Calculus I (3)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (1)

#### *Mathematics and Statistics Courses*

*Select one of the following:*

MATH 1242 Calculus II (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 1221 Elements of Statistics I (3)  
STAT 1222 Introduction to Statistics (3)

#### *Science and Lab Courses*

*Select one of the following:*

CHEM 1252 Principles of Chemistry (3)  
and CHEM 1252L Principles of Chemistry Lab (1)  
PHYS 1102 Introductory Physics II (3)  
and PHYS 1102L Introductory Physics II Lab (1)

#### **Elective Courses (7 credit hours)**

Select 7 credit hours from the Earth and Environmental Sciences electives listed below or other required courses from the Concentrations in Environmental or Hydrological Sciences of the B.S. in Earth Sciences.

BIOL 3215 Economic Botany (3) (W)  
BIOL 4162 Environmental Biotechnology I (3)  
BIOL 4163 Environmental Biotechnology II (3)  
CEGR 3143 Hydraulics and Hydrology (3)  
ESCI 3170 Environmental Quality Management (3)  
ESCI 3180 Environmental Impact Analysis (3)  
ESCI 4160 Contaminant Transport (3)  
ESCI 4180 Digital Image Processing in Remote Sensing (4)  
ESCI 4210 Soil Science (4)  
ESCI 4233 Geoenvironmental Site Characterization (4)  
GEOG 3215 Environmental Planning (3) (W)  
GEOG 3250 World Food Problems (3)  
GEOG 4216 Landscape Ecology (3)  
GEOL 3120L Geochemistry Lab (1)  
GEOL 3124 Sedimentology (4) (W)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4120 Geologic Mapping and Interpretation (4)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4140 Coastal Geology (3)  
GEOL 4165 Aqueous Geochemistry (4)  
GEOL 4175 Geochemistry (3)  
GEOL 4410 Applied Soil Science (4)  
METR 3250 Dynamic Meteorology (4)  
METR 3252 Weather Analysis Lab (1)  
METR 4150 Applied Climatology (3) (W)  
METR 4240 Boundary-Layer Meteorology (3)

*\*Students are responsible for meeting all required prerequisites for elective courses.*

#### **Unrestricted Elective Courses**

As needed.

## **Degree Total = 120 Credit Hours**

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Science in Earth and Environmental Sciences with Concentration in Environmental Sciences**

The B.S. in Earth Sciences with a Concentration in Environmental Sciences consists of a minimum of 38 credit hours of required Earth Science (ESCI), Geography (GEOG), and Geology (GEOL) courses, 23 credit hours of required extra-departmental coursework, and 3 credit hours of elective courses.

### **Degree Requirements**

#### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

#### **Major Courses (22 credit hours)**

ESCI 1101 Earth Science-Geography (3)  
ESCI 1101L Earth Science-Geography Lab (1)  
ESCI 2101 The Environmental Dilemma (3)  
ESCI 2210 Field Methods in the Earth and Environmental Sciences (3)  
ESCI 3101 Global Environmental Change (3)  
ESCI 4600 Earth Sciences Seminar (1)  
GEOG 3120 Fundamentals of Geographic Information Systems (4)  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)

#### **Concentration Courses (16 credit hours)**

ESCI 3205 Water Resources (3)  
GEOG 3190 Biogeography (3) W  
GEOG 4131 Environmental Modeling with GIS (4)  
GEOG 4215 Urban Ecology (3)  
GEOL 3105 The Earth's Mineral Resources: Sustainability and the Environmental Impacts of Recovery (3) or  
GEOL 3190 Environmental Geology (3)

#### **Related Courses (23 credit hours)**

BIOL 2120 General Biology I (3)  
BIOL 2130 General Biology II (3)  
BIOL 2140L General Biology II Laboratory (2)  
BIOL 3144 Ecology (3)  
BIOL 3144L Ecology Laboratory (1) (W)  
CHEM 1251 Principles of Chemistry (3)  
CHEM 1251L Principles of Chemistry Lab (1)

CHEM 1252 Principles of Chemistry II (3)  
CHEM 1252L Principles of Chemistry II Lab (1)  
CHEM 2130 Survey of Organic Chemistry (3) or  
CHEM 2131 Organic Chemistry I (3)

#### Restricted Elective Courses (3 credit hours)

Select 3 credit hours from the Earth and Environmental Sciences electives list below or other required courses from the Concentrations in Atmospheric or Hydrological Sciences of the B.S. in Earth Sciences.

BIOL 3215 Economic Botany (3) (W)  
BIOL 4162 Environmental Biotechnology I (3)  
BIOL 4163 Environmental Biotechnology II (3)  
CEGR 3143 Hydraulics and Hydrology (3)  
ESCI 3170 Environmental Quality Management (3)  
ESCI 3180 Environmental Impact Analysis (3)  
ESCI 4160 Contaminant Transport (3)  
ESCI 4180 Digital Image Processing in Remote Sensing (4)  
ESCI 4210 Soil Science (4)  
ESCI 4233 Geoenvironmental Site Characterization (4)  
GEOG 3215 Environmental Planning (3) (W)  
GEOG 3250 World Food Problems (3)  
GEOG 4216 Landscape Ecology (3)  
GEOL 3120L Geochemistry Lab (1)  
GEOL 3124 Sedimentology (4) (W)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4120 Geologic Mapping and Interpretation (4)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4140 Coastal Geology (3)  
GEOL 4165 Aqueous Geochemistry (4)  
GEOL 4175 Geochemistry (3)  
GEOL 4410 Applied Soil Science (4)  
METR 3250 Dynamic Meteorology (4)  
METR 3252 Weather Analysis Lab (1)  
METR 4150 Applied Climatology (3) (W)  
METR 4240 Boundary-Layer Meteorology (3)

*\*Students are responsible for meeting all required prerequisites for elective courses.*

#### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Bachelor of Science in Earth and Environmental Sciences with Concentration in Hydrological Sciences

The B.S. in Earth Sciences with a Concentration in Hydrologic Sciences consists of a minimum of 43 credit hours of required Earth Science (ESCI), Geography (GEOG), Meteorology (METR), and Geology (GEOL) courses, 17 credit hours of required extra-departmental courses, and 4 credit hours of elective courses.



### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (22 credit hours)

ESCI 1101 Earth Science-Geography (3)  
ESCI 1101L Earth Science-Geography Lab (1)  
ESCI 2101 The Environmental Dilemma (3)  
ESCI 2210 Field Methods in the Earth and Environmental Sciences (3)  
ESCI 3101 Global Environmental Change (3)  
ESCI 4600 Earth Sciences Seminar (1)  
GEOG 3120 Fundamentals of Geographic Information Systems (4)  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)

#### Concentration Courses (21 credit hours)

ESCI 3105 Oceanography (3)  
ESCI 3205 Water Resources (3)  
ESCI 4140 Hydrologic Processes (4)  
ESCI 4155 Fluvial Processes (4)  
ESCI 4222 Watershed Science (3)  
GEOL 4145 Fundamentals of Hydrogeology (4) (W)

#### Related Courses (17 credit hours)

CHEM 1251 Principles of Chemistry (3)  
CHEM 1251L Principles of Chemistry Lab (1)  
MATH 1241 Calculus I (3)

#### Statistics Course

*Select one of the following:*

STAT 1220 Elements of Statistics I (BUSN) (3)

STAT 1221 Elements of Statistics I (3)  
STAT 1222 Introduction to Statistics (3)

*Mathematics or Statistics Course*

*Select one of the following:*

MATH 1242 Calculus II (3)  
STAT 2223 Elements of Statistics II (3)

*Science and Lab Courses*

*Select one of the following:*

CHEM 1252 Principles of Chemistry (3)  
and CHEM 1252L Principles of Chemistry Lab (1)  
PHYS 1101 Introductory Physics I (3)  
and PHYS 1101L Introductory Physics I Lab (1)

**Restricted Elective Courses (4 credit hours)**

Select 4 credit hours from the Earth and Environmental Sciences electives list below or other required courses from the Concentrations in Atmospheric or Environmental Sciences of the B.S. in Earth Sciences.

BIOL 3215 Economic Botany (3) (W)  
BIOL 4162 Environmental Biotechnology I (3)  
BIOL 4163 Environmental Biotechnology II (3)  
CEGR 3143 Hydraulics and Hydrology (3)  
ESCI 3170 Environmental Quality Management (3)  
ESCI 3180 Environmental Impact Analysis (3)  
ESCI 4160 Contaminant Transport (3)  
ESCI 4180 Digital Image Processing in Remote Sensing (4)  
ESCI 4210 Soil Science (4)  
ESCI 4233 Geoenvironmental Site Characterization (4)  
GEOG 3215 Environmental Planning (3) (W)  
GEOG 3250 World Food Problems (3)  
GEOG 4216 Landscape Ecology (3)  
GEOL 3120L Geochemistry Lab (1)  
GEOL 3124 Sedimentology (4) (W)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4120 Geologic Mapping and Interpretation (4)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4140 Coastal Geology (3)  
GEOL 4165 Aqueous Geochemistry (4)  
GEOL 4175 Geochemistry (3)  
GEOL 4410 Applied Soil Science (4)  
METR 3250 Dynamic Meteorology (4)  
METR 3252 Weather Analysis Lab (1)  
METR 4150 Applied Climatology (3) (W)  
METR 4240 Boundary-Layer Meteorology (3)

*\*Students are responsible for meeting all required prerequisites for elective courses.*

**Unrestricted Elective Courses**

As needed.

**Degree Total = 120 Credit Hours**

**Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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**Minor in Earth Sciences**

A Minor in Earth Sciences consists of 20 credit hours of Earth Sciences courses. The minor can be tailored to support a number of majors, such as education, engineering, biology, chemistry, or physics.

**Program Requirements**

**Required Courses (8 credit hours)**

ESCI 1101 Earth Sciences – Geography (3)  
ESCI 1101L Earth Sciences - Geography Lab (1)  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Laboratory (1)

**Elective Courses (12 credit hours)**

*Select from the following:*

ESCI 3105 Oceanography (3)  
ESCI 3170 Environmental Quality Management (3)  
ESCI 4140 Hydrologic Processes (4)  
ESCI 4155 Fluvial Processes (4)  
ESCI 4210 Soil Science (4)  
GEOL 1210 Earth History (3)  
GEOL 1210L Earth History Laboratory (1)  
GEOL 3190 Environmental Geology (3)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Laboratory (1)  
METR 3140 Introduction to Meteorology and Climatology (3)  
METR 3245 Synoptic Meteorology (4)

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**Minor in Environmental Sciences**

The Minor in Environmental Sciences is an interdisciplinary program in the College of Liberal Arts & Sciences that is designed for students pursuing any UNC Charlotte degree who are interested in careers related to studying or managing the environment.



**Program Requirements**

To obtain a Minor in Environmental Sciences, students must complete 18 credit hours offered from the Department of Geography and Earth Sciences and the Department of Biological Sciences. Participating students have some flexibility

in choosing elective courses that reflect their specific area of interest within the environmental field. If students are Geography and Earth Sciences or Biological Science majors, they must take at least 9 of the 15 elective credits outside of their major. Prerequisites are required for most of the elective classes (notably GEOL 1200 and lab, ESCI 1101 and lab, BIOL 2120, and BIOL 2130 and lab). Courses that are required for a student's major cannot be counted toward the minor as well, but electives taken for a major can also be counted for the minor.

#### **Foundation Course (3 credit hours)**

ESCI 2101 Environmental Dilemma (3)

#### **Elective Courses (15 credit hours)**

*Select from the following:*

##### **Biological Sciences**

BIOL 3144 Ecology (3)  
BIOL 3202 Horticulture (3) (W)  
BIOL 3222 General Botany (4)  
BIOL 3229 Field Botany (3)  
BIOL 3231 Invertebrate Zoology (4)  
BIOL 3233 Vertebrate Zoology (4)  
BIOL 3235 Biology of Insects (3)  
BIOL 3236 General Zoology (3)  
BIOL 4111 Evolution (3)  
BIOL 4162 Advanced Biotechnology I (3) (W)  
BIOL 4235 Mammalogy (4)  
BIOL 4242 The Biology of Birds (3)  
BIOL 4243 Animal Behavior (3)  
BIOL 4253 Marine Microbiology (4)

##### **Earth Sciences**

ESCI 3105 Oceanography (3)  
ESCI 3170 Environmental Quality Management (3)  
ESCI 3180 Environmental Impact Analysis (3)  
ESCI 4140 Hydrological Processes (4)  
ESCI 4155 Fluvial Processes (4)  
ESCI 4170 Fundamentals of Remote Sensing (4)  
ESCI 4210 Soil Science (4)  
ESCI 4222 Watershed Science (3)  
ESCI 4233 Geoenvironmental Site Characterization (4)

##### **Geography**

GEOG 2103 Elements of GIScience and Technologies (4)  
GEOG 3120 Fundamentals of Geographic Information Systems (4)  
GEOG 3215 Environmental Planning (3) (W)  
GEOG 3250 World Food Problems (3)  
GEOG 4040 Transportation Planning (3)  
GEOG 4131 Environmental Modeling with GIS (4)  
GEOL 3105 The Earth's Mineral Resources: Sustainability and the Environmental Impacts of Recovery (3)  
GEOL 3120 Geochemistry (3)  
GEOL 3190 Environmental Geology (3)

GEOL 4145 Fundamentals of Hydrogeology (4) (W)

##### **Meteorology**

METR 4150 Applied Climatology (3) (W)  
METR 4240 Boundary-Layer Meteorology (3)

#### **Grade Requirements**

Students must have and maintain a GPA of at least 2.75 to participate in the program.

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## **Bachelor of Science in Geology**

A Major in Geology leading to a B.S. degree consists of a minimum of 45 credit hours in geology and earth sciences and 18 credit hours of extra-departmental courses in chemistry, physics, and mathematics.

#### **Degree Requirements**

##### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

##### **Major Courses (28 credit hours)**

ESCI 1101 Earth Sciences – Geography (3)  
ESCI 1101L Earth Sciences – Geography Lab (1)  
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)  
GEOL 1210 Earth History (3)  
GEOL 1210L Earth History Laboratory (1)  
GEOL 3115 Mineralogy (4)  
GEOL 3124 Sedimentology (4)  
GEOL 3130 Structural Geology (4)  
GEOL 4130 Optical Mineralogy (4)

##### **Restricted Elective Courses (17 credit hours)**

Students should select from 3000 level or above ESCI or GEOL courses.

Students interested in licensure as a **Professional Geologist (PG)** are strongly advised to enroll in:

ESCI 4005 Engineering Geology (3)  
GEOL 3105 The Earth's Mineral Resources: Sustainability and the Environmental Impacts of Recovery (3)  
GEOL 3120 Geochemistry (3)  
GEOL 3140 Paleontology (3)  
GEOL 4100 Igneous and Metamorphic Petrology (4)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4110 Stratigraphy (4)  
GEOL 4120 Geologic Mapping and Interpretation (4)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4135 Tectonics (4)  
GEOL 4145 Fundamentals of Hydrogeology (4) (W)

Students interested in licensure as a **Professional Soil Scientist (PSS)** are strongly advised to enroll in:

ESCI 4140 Hydrologic Processes (4)  
ESCI 4210 Soil Science (4)  
ETCE 3131 Soil Mechanics and Earthwork (3)  
ETCE 3131L Soil Testing Lab (1) (W)  
GEOL 3120 Geochemistry (3)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4410 Applied Soil Science (4)

#### Related Courses (18 credit hours)

CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
PHYS 1101 Introductory Physics I (3)  
PHYS 1101L Introductory Physics I Lab (1)  
MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)

*Select one of the following science courses and its related lab:*

CHEM 1252 Principles of Chemistry (3)  
CHEM 1252L Principles of Chemistry Lab (1)

PHYS 1102 Introductory Physics II (3)  
PHYS 1102L Introductory Physics II Lab (1)

#### Recommended Courses

*These optional courses are recommended for students planning to attend graduate school:*

GEOL 4125 Field Camp (6)  
GEOL 4800 Individual Study in Geology (3)  
STAT 2122 Introduction to Probability and Statistics (3)

#### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

#### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Geology

A Minor in Geology consists of a minimum of 20 credit hours in Geology courses. The minor can be tailored to support a number of majors, such as engineering, biological sciences, chemistry, or physics. Upper-division earth sciences courses can be applied to the minor with permission of the department.

#### Required Courses (8 hours)

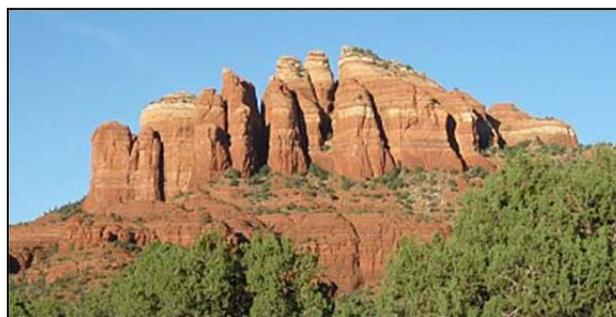
GEOL 1200 Physical Geology (3)  
GEOL 1200L Physical Geology Lab (1)  
GEOL 1210 Earth History (3)  
GEOL 1210L Earth History Laboratory (1)

#### Elective Courses (Select 12 hours)

GEOL 3115 Mineralogy (4)  
GEOL 3120 Geochemistry (3)  
GEOL 3124 Sedimentology (4)  
GEOL 3130 Structural Geology (4)  
GEOL 3140 Paleontology (3)  
GEOL 3190 Environmental Geology (3)  
GEOL 3190L Environmental Geology Lab (1)  
GEOL 4410 Applied Soil Science (4)  
GEOL 4100 Igneous and Metamorphic Petrology (4)  
GEOL 4105 Geomorphology (3)  
GEOL 4105L Geomorphology Lab (1)  
GEOL 4110 Stratigraphy (4)  
GEOL 4115 Applied Geophysics (4)  
GEOL 4120 Geologic Mapping and Interpretation (4)  
GEOL 4125 Geologic Summer Field Camp (6)  
GEOL 4130 Optical Mineralogy (3)  
GEOL 4135 Tectonics (4)  
GEOL 4145 Fundamentals of Hydrogeology (4) (W)  
GEOL 4165 Aqueous Geochemistry (4)  
GEOL 4400 Internship in Geology (3-6)  
GEOL 4800 Individual Study in Geology (1-4)

#### Earth Sciences Courses that May Be Applied to the Minor in Geology with Departmental Permission

ESCI 4210 Soil Science (3)  
ESCI 3105 Oceanography (3)  
ESCI 4140 Hydrologic Processes (4)  
ESCI 4600 Earth Sciences Seminar (1)  
ESCI 4155 Fluvial Processes (4)  
ESCI 4170 Fundamentals of Remote Sensing (4)  
ESCI 4233 Geoenvironmental Site Characterization (4)

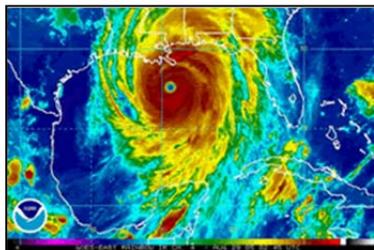


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## Bachelor of Science in Meteorology

The primary goal of the Bachelor of Science in Meteorology is to advance our understanding of the atmospheric processes that influence weather and climate. This pursuit inherently involves an interdisciplinary approach through the combination of advanced coursework in mathematics, chemistry, physics, statistics, computer science, geology, earth sciences, and meteorology with emphasis on recent basic and applied research. The program is designed to provide the next generation of meteorologists with

sufficient knowledge and skills to: (1) effectively monitor and analyze the atmospheric state across a spectrum of temporal and geospatial scales; (2) provide accurate and timely forecasts of ordinary and severe weather; and (3) address relevant contemporary challenges such as global and regional climate change, human interactions with the natural environment, and the development of sustainable communities. To this end, the core meteorological curriculum is composed of courses that collectively provide a broad treatment of multi-scale atmospheric processes, including atmospheric thermodynamics and physics as well as synoptic, dynamic, and mesoscale meteorology.



### Degree Requirements

The major comprises a minimum of 70 total credit hours with 31 credit hours of required departmental courses, 9 credit hours of elective departmental courses, and 30 credit hours of required extra-departmental courses. Students are also encouraged to take additional coursework in related disciplines. Students enrolled in the program must complete a total of 120 credit hours.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (31 credit hours)

- ESCI 1101 Earth Sciences – Geography (3)
- ESCI 1101L Earth Sciences – Geography Lab (1)
- GEOL 1200 Physical Geology (3)
- GEOL 1200L Physical Geology Lab (1)
- METR 3140 Introduction to Meteorology and Climatology (3)
- METR 3210 Atmospheric Thermodynamics (3)
- METR 3220 Physical Meteorology (3)
- METR 3245 Synoptic Meteorology (4)
- METR 3250 Dynamic Meteorology (4)
- METR 4245 Advanced Synoptic Meteorology (3)
- METR 4250 Advanced Dynamic Meteorology (3)

### Restricted Elective Courses (9 credit hours)

Select from the following:

- ESCI 3105 Oceanography (3)
- ESCI 4140 Hydrological Processes (4)
- ESCI 4155 Fluvial Processes (4)
- ESCI 4170 Fundamentals of Remote Sensing (4)
- ESCI 4180 Advanced Remote Sensing (4)
- GEOG 2103 Elements of GIScience and Technologies (4)

- GEOG 3120 Fundamentals of Geographic Information Systems (4)
- GEOG 3215 Environmental Planning (W) (3)
- GEOG 4131 Environmental Modeling with GIS (4)
- METR 3252 Weather Analysis Laboratory (1)
- METR 3330 Weather Forecasting (3)
- METR 3340 Weather Communications (3)
- METR 4150 Applied Climatology (W) (3)
- METR 4240 Boundary Layer Meteorology (3)
- METR 4320 Tropical Meteorology (3)
- METR 4350 Mesoscale Meteorology (3)

### Related Courses (30 credit hours)

- CHEM 1251 General Chemistry I (3)
- CHEM 1251L General Chemistry I Lab (1)
- ITCS 1212 Introduction to Computer Science (4)
- ITCS 1212L Introduction to Computer Science Lab (0)
- MATH 1241 Calculus I (3)
- MATH 1242 Calculus II (3)
- MATH 2171 Differential Equations (3)
- MATH 2241 Calculus III (3)
- PHYS 2101 Physics for Science I (3)
- PHYS 2101L Physics for Science I Lab (1)
- PHYS 2102 Physics for Science II (3)
- PHYS 2102L Physics for Science II Lab (1)
- STAT 2122 Introduction to Probability and Statistics (3)

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



### Honors Program

To graduate with Honors in Geography, Geology, Earth and Environmental Sciences, Environmental Studies, or Meteorology, students must meet the following

requirements:

- 1) Satisfy all the requirements for the degree sought and for the major in Geography, Geology, Earth and Environmental Sciences, Environmental Studies, or Meteorology.
- 2) Maintain at least a 3.2 GPA overall and a 3.2 GPA in all geography, geology, earth sciences, and meteorology courses taken at UNC Charlotte to satisfy major requirements.
- 3) As part of the final 15 hours of coursework, students must: (a) register for at least 3 hours of the Honors section of GEOG 4800, GEOL 4800, ESCI 4800, or METR 4800 (Individual Study in Geography/Geology/Earth Sciences/Meteorology), and (b) complete a research project and an Honors thesis to be submitted to the Department Honors Committee composed of department faculty that certifies that the project merits Honors distinction. Candidates must earn a grade of A on the thesis research (Honors section of 4800) and present the results in a public forum. To be certified as Honors quality, projects must contain original research and demonstrate a high degree of scholarship.

Students seeking the Honors designation must notify the Department Honors Committee of their proposed research plan during the semester prior to undertaking the research project and must submit an Application for Admission to Candidacy to the Honors Council. Both the Department Honors Committee and the Honors Council must approve the proposed research plan before the student can be admitted to candidacy as an Honors student.

Faculty members who serve on the Department Honors Committee will not evaluate projects completed under their supervision. Instead, another faculty member will be asked to evaluate the project in question along with the other members of the Department Honors Committee. Should the Department Honors Committee agree to confer Honors on the student's project, it will certify this to the Department Chair and to the Honors Council. Should the Department Honors Committee decide that the project does not warrant Honors, students will still receive whatever grade the faculty member supervising the project assigns.

The honors notation will appear on a student's official transcript.

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## Cooperative Education Program

Students in the Geography and Earth Sciences programs may obtain practical work experience while pursuing their degrees by participating in the

Cooperative Education program. The work experience is approved by the department and is closely related to the student's field of study. The Cooperative Education Program allows qualified students either to alternate semesters of academic study with semesters of full-time work experience or to combine part-time academic study and part-time work during the same semester. Students who are in good standing with the University, have a minimum overall GPA of 2.5, and have completed 30 credit hours are eligible to apply. Transfer students are required to complete 12 credit hours at the University prior to application. Students interested in learning more about participating in this program should contact the Department of Geography and Earth Sciences or the University Career Center.

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# Gerontology

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<http://gerontology.uncc.edu>

The interdisciplinary program in Gerontology is designed to provide students with academic and field experiences in the area of aging. An understanding of the basic processes of aging and of its social consequences is valuable not only for students who



wish to pursue careers directly related to gerontology but also for students interested in traditional careers in other areas and interested in their

own aging. As the number of older persons in our society continues to increase, it will be important for people in every occupation and profession to have a basic understanding of the aging process. The goal of the program is to provide students with that basic understanding.

Gerontology is both an interdisciplinary and a multidisciplinary field. Invariably, the best research, training, and service programs in gerontology have developed when professionals from a variety of traditional academic disciplines have been afforded the opportunity to work together, each contributing a unique expertise while benefiting from the expertise of others. The minor in Gerontology is built around a core sequence of interdisciplinary and multidisciplinary courses that are taught from a variety of different academic disciplines. This approach is designed to bring together information from multidisciplinary sources, integrate theoretical and applied concepts in gerontology, and communicate to students the need for an integrated approach to meeting the needs of older persons.

A Minor in Gerontology can be useful in combination with a broad range of majors. With the aging population growing rapidly in the U.S. and globally, there are consequences that translate into diverse career options. Projections indicate opportunities in city planning, administration, management, recreation, counseling, physical therapy, social work, program development, research, long-term care administration and healthcare, for example.

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## Minor in Gerontology

The Minor in Gerontology is awarded only to students completing an undergraduate major at UNC Charlotte. A total of 18 hours in gerontology courses with an

overall GPA of 2.5 in those courses is required. Students must earn a C or above in courses that are counted toward the minor.

## Program Requirements

### Required Courses

GRNT/SOCY 2100 Aging and the Lifecourse (3) (SL)  
GRNT 3600 Senior Seminar and Field Experience in Aging (3) (W)\*

*\*Participation in a preliminary orientation session a semester in advance is required to receive a permit for this class. Students must be declared minors who have completed GRNT 2100, two primary electives, and one secondary elective (at a minimum), and should take this course as close to graduation as possible.*

### Primary Electives

*Select at least two of the following:*

GRNT/PSYC 2124 Psychology of Aging (3)  
GRNT/HLTH 3115 Health and the Aging Process (3)  
GRNT/SOCY 4110 Sociology of Aging (3)  
GRNT 4250 Aging Programs and Services (3)

### Secondary Elective Courses

Secondary elective courses may be chosen from the following list of approved courses related to gerontology in consultation with the Gerontology Undergraduate Coordinator. Other appropriate courses may be chosen as electives in consultation with the Gerontology Undergraduate Coordinator.

ANTH/GRNT 3132 Aging and Culture (3) (W)  
GRNT/SOCY 3267 Sociology of Dying, Death and Bereavement (3)  
GRNT 3800 Independent Study in Gerontology (1-8)  
*(total of 3 credits can be counted toward minor)*  
GRNT 4050 Topics in Gerontology (1-4)  
GRNT/SOCY 4134 Families and Aging (3)  
GRNT/SOCY 4150 Older Individual and Society (3)  
GRNT/HLTH/WGST 4260 Women: Middle Age and Beyond (3)  
GRNT 4270 Intergenerational Relationships and Programs (3)  
GRNT 4280 The Experience of Dementia (3)  
LBST 1102-425/426 Arts & Society Film (GRNT):  
Aging and the Lifecourse in Film (3)  
PHIL 3230 Healthcare Ethics (3)  
PSYC 3125 Older Worker and Retirement (3) (W)  
SOCY 4130 Sociology of Health and Illness (3)  
SOWK 4101 Social Work Practice with Elderly (3)

Because this is designed to be an interdisciplinary minor, no more than three courses in the student's major may count toward the minor.

Students who have earned a bachelor's degree from UNC Charlotte may be readmitted to pursue a Minor in Gerontology, just as they may be readmitted to pursue a second major. (For further information on readmission, see the Admission to the University section of this *Catalog*.)

Students who have earned a bachelor's degree from an institution other than UNC Charlotte may not receive a Minor in Gerontology from UNC Charlotte (unless they earn a second baccalaureate degree from UNC Charlotte). Such students may request a letter from the program and/or a transcript notation that acknowledges completion of courses specified for the minor but indicates that the minor can only be awarded upon completion of a degree.

The Gerontology Program offers both a Master's degree and a graduate certificate program in Gerontology. See the *UNC Charlotte Graduate Catalog* for more details.

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# Department of Global, International, and Area Studies

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<http://gias.uncc.edu>

The Department of Global, International, and Area Studies promotes global awareness and knowledge of cultural, economic, geographic, political, and social issues around the world. Through its programs, the department seeks to prepare students for the challenges of the 21st century.

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## Bachelor of Arts in International Studies

International Studies draws upon the faculty and courses of a number of departments and is structured to give students skills and knowledge to understand and analyze societies outside the United States in the context of the rapidly changing and increasingly interdependent world. By integrating courses on area studies and world affairs from a variety of departments, the program allows students interested in studying other cultures and societies to focus attention across traditional disciplinary boundaries. International Studies is of particular value to those with career objectives in government, law, journalism, teaching,



business, trade, or military service. It also serves those who will seek employment with international organizations such as the United Nations or with non-governmental

agencies with an international or cross-cultural focus.

International Studies graduates work for employers such as local, state, and federal governments; international organizations; private sector businesses; nonprofit organizations; colleges and universities; elementary and secondary schools; think tanks; the military; newspapers and magazines; law firms; financial institutions; public relations firms; and the travel industry. They also find careers as foreign service officers, policy analysts, international trade specialists, diplomats, United Nations staffers, lobbyists, intelligence specialists, translators/

interpreters, US Customs officers, cultural liaisons, journalists, business managers, government or business consultants, ESL administrators/instructors, professors, teachers, travel/tourism promoters, military officers, and missionaries.

### Degree Requirements

A Major in International Studies requires a minimum of 30 credit hours in courses approved for International Studies credit. Majors must also complete related work in foreign language and an international experience as stipulated in the core curriculum. Each student, in consultation with an advisor, will prepare a Plan of Study for completion of these requirements upon declaration of the major.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foreign Language Courses

Students are expected to demonstrate competency in a foreign language appropriate to the area studies concentration they have selected by completing the equivalent of two courses at the 3000-level or above. Language courses at the 3000-level offered in English do not apply to the foreign language requirement.

### Major Courses (12 credit hours)

INTL 1101 Introduction to International Studies (3)

### Economic Awareness Course

Select one of the following:

INTL 3151 International Political Economy (3)  
or POLS 3151 International Political Economy (3)  
ECON 2101 Principles of Macroeconomics (3)  
ECON 3171 International Business Economics (3)  
GEOG 3105 Geography of the Global Economy (3)  
HONR 1702 Economic Welfare and International Communities (or LBST 2102-equivalent Honors Section) (3)

### Geo/Political Awareness Course

Select one of the following:

INTL 3111 Politics and Culture in Literature (3)\*  
INTL 3131 Diplomacy in a Changing World (3)  
INTL 3135 Origins of Globalization (3)  
INTL 3136 Globalization and Resistance (3)  
GEOG 2165 Patterns of World Urbanization (3)  
HONR 1701 War, Peace, Justice and Human Survival (or LBST 2101-equivalent Honors Section) (3)  
POLS 3135 Terrorism (3)  
POLS 3152 International Organization (3)  
POLS 3162 International Law (3)  
POLS 4163 Model United Nations (3)

### Social/Cultural Awareness Course

Select one of the following:

INTL 3111 Politics and Culture in Literature (3)\*  
INTL 3112 Globalization and Culture (3)  
or ANTH 3112 Globalization and Culture (3)  
INTL 3115 Globalization and Digital Media (3)  
or COMM 3126 Globalization and Digital Media (3)  
INTL 3120 Women's Studies International (3)  
or WGST 4120 Women's Studies International (3)  
INTL 3127 Global Media  
ANTH 2121 Comparative Family Systems (3)  
ANTH 2122 Beliefs, Symbols and Rituals (3)  
ANTH 2123 Women in Cross Cultural Perspective (3)  
ANTH 3122 Culture, Health and Disease (3)  
ANTH 3124 Food, Nutrition and Culture (3)  
ANTH 4111 Applied Anthropology (3) (SL)  
ANTH 4120 Intercultural Communication (3)  
CJUS 4103 International Criminal Justice (3)  
COMM 4147 International Public Relations (3)  
HONR 3702 Human Rights and Social Justice (3)  
RELS 2131 Islam (3)

*\*INTL 3111 may be used for either the Geo/Political Awareness requirement or the Social/Cultural Awareness requirement.*

### Concentration Courses (15 credit hours)

Select from one of the two concentration options.

#### Area Studies Concentration

Select an area of concentration and complete the required course designated.

*Africa:* INTL 2101 Introduction to African Studies (3)  
*Asia:* INTL 2201 Introduction to Asian Studies (3)  
*Europe:* INTL 2301 Introduction to European Studies (3)  
*Latin America:* INTL 2401 Introduction to Latin American Studies (3)\*

*\*No new students admitted to Latin American Studies concentration.*

#### Elective Courses

An additional 12 hours of elective credit from courses approved within the selected area studies concentration must be completed (see list of recommended courses). While there is no formal requirement as to the distribution of courses across departments, the Plan of Study for area studies must address issues that will further economic, geo/political, and social/cultural awareness.

#### Comparative Studies Concentration

Students seeking to focus their study around the comparative analysis of a particular issue or theme may do so with the advice and permission of an advisor. Students seeking to pursue this option must

submit a written proposal describing the intended course of study. Approval is based on the merit of the proposal and the anticipated availability of sufficient courses on a regular basis. A total of 15 credit hours from courses approved for the concentration must be completed. An international experience appropriate to the concentration is required. Competency in a foreign language appropriate to the concentration equivalent to the completion of two courses at the 3000-level or above is also required.

### International Experience

Students are required to complete an international experience related to the area studies concentration they have selected. This may be fulfilled through participation in a formal education abroad program or through foreign-based work, service, or internship activities. This experience must be specified and approved by an advisor. Academic credits earned may be applied to the requirements of the major. A U.S.-based experience of an international nature or prior international experience may be considered in exceptional circumstances, subject to the approval of an advisor.



### Seminar Course (3 hours)

INTL 4601 International Studies Seminar (3)

### Unrestricted Elective Courses

As needed.

### Second Majors

Students pursuing a second major may apply up to nine (9) hours of credit from courses in that major toward the requirements for the Major in International Studies. Exceptions may be approved by an advisor upon consultation with the other program in question. Without exception, courses that are used to fulfill the foreign language requirement for International Studies cannot be used to fulfill other requirements for the major.

### Degree Total = 120 Credit Hours

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Minor in International Studies

A Minor in International Studies requires completion of 18 credit hours (and 6 to 8 hours of foreign language at the 2000-level) with a GPA of 2.5 or above. Students complete 6 hours of introductory coursework and 12 hours from courses in a selected concentration. Students select a concentration in African Studies, Asian Studies, European Studies, or Latin American Studies (*Note: no new students admitted to Latin American Studies concentration*). A self-designed concentration focusing on a particular issue, theme, or region is also available. All students pursuing the minor must have their curriculum approved by an advisor.

### Minor Requirements

#### Core Courses (6 hours)

INTL 1101 Introduction to International Studies (3)

*and one of the following:*

ANTH 1101 Introduction to Anthropology (3)

GEOG 1101 World Regional Geography (3)

POLS 1130 Introduction to Comparative Politics (3)

POLS 1150 Introduction to International Politics (3)

#### Foreign Language Requirement (6-8 hours)

Select six to eight hours of foreign language at the 2201 and 2202 level in a language appropriate to the selected concentration. If 2201 and 2202 courses are not available, 1201 and 1202 in a second appropriate language may be presented.

#### Area Concentration Requirement (12 hours)

Select twelve hours of related coursework appropriate to the selected concentration in *African, Asian, European, or Latin American Studies* (see list of recommended courses below). All courses must be chosen from outside the student's major and from at least two departments.

#### African Studies

INTL 2101 Introduction to African Studies (3)\*

or HIST 2211 Modern Africa (3)\*

AFRS 2206 African Literature, Music, and Art (3)

AFRS 2207 Pan-Africanism (3)

AFRS 3265 African Economic Development (3)

AFRS 4101 Modern African Literature in English (3)

AFRS 4105 African International Relations (3)

or POLS 3169 African International Relations (3)

ANTH 2111 Peoples of Africa (3)

ENGL 4155 Pan-African Literature (3)

HIST 2210 Pre-Colonial Africa (3)

POLS 3143 African Politics (3)

#### Asian Studies

INTL 2201 Introduction to Asian Studies (3)\*

or HIST 2201 History of Modern Asia (3)\*

HIST 2200 Asian Civilization (3)  
 HIST 3160 History of Modern China (3)  
 HIST 3162 Revolutionary Movements in Modern China (3)  
 HIST 3165 History of Modern Japan (3)  
 JAPN 2209 Japanese Civilization and Culture (3)  
 JAPN 3130 Business and Culture in Japan (3)  
 JAPN 3140 Anime and Japanese Popular Culture (3)  
 JAPN 3160 Topics in Japanese Film (3)  
 POLS 3148 Chinese Politics (3)  
 POLS 3165 East Asia in World Affairs (3)  
 RELS 2102 Introduction to Asian Religions (3)  
 RELS 2154 Hinduism (3)  
 RELS 2157 South Asian Buddhism (3)  
 RELS 2166 Daoism (3)  
 RELS 2169 Mahāyāna Buddhism in East Asia (3)  
 RELS 3163 Religious Art and Architecture of India (3)

### ***European Studies***

INTL 2301 Introduction to European Studies (3)\*  
 or HIST 1121 European History Since 1660 (3)\*  
 ENGL 4123 Modern British Literature (3)  
 LACS 3160 European Cinema (3)  
 FREN 2209 French Civilization (3)  
 FREN 3209 France Today (3)  
 FREN 4003 Studies in French Literature (3)  
 FREN 4007 Studies in French Culture and Civilization (3)  
 FREN 4202 Survey of French Literature II (3)  
 GERM 3030 Studies in German Culture (3)  
 GERM 3050 Studies in German Literature (3)  
 GERM 3160 Survey of German Film (3)  
 GERM 4204 Survey of German Literature II (3)  
 HIST 2152 European Women's and Gender History (3)  
 HIST 2252 Russian History from 1917 to the Present (3)  
 HIST 2261 Britain Since 1688 (3)  
 HIST 2271 Modern France (1750 to the Present) (3)  
 HIST 2281 Modern Germany (3)  
 HIST 3140 Irish History (3)  
 HIST 3147 The Third Reich (3)  
 HIST 3148 The Holocaust (3)  
 PHIL 3020 Modern Philosophy (3)  
 POLS 3141 European Politics (3)  
 POLS 3153 European Union (3)  
 RELS 2101 Introduction to Western Religions (3)  
 RUSS 3203 Russian Civilization and Culture (3)  
 SPAN 3209 Spanish Civilization and Culture (3)  
 SPAN 4202 Twentieth Century Spanish Literature (3)

### ***Latin American Studies***

INTL 2401 Introduction to Latin American Studies (3)\*  
 or HIST 2207 Modern Latin America (3)\*  
 AFRS 3190 Political Economy of the Caribbean (3)  
 or LTAM 3190 Political Economy of the Caribbean (3)  
 ANTH 2116 Contemporary Latin America (3)  
 or LTAM 2116 Contemporary Latin America (3)

ANTH 4616 Culture and Conflict in the Amazon (3)  
 or LTAM 4116 Culture and Conflict in the Amazon (3)  
 ARTH 2003 Pre-Columbian Art (3)  
 or LTAM 3313 Pre-Columbian Art (3)  
 HIST 2206 Colonial Latin America (3)  
 or LTAM 2206 Colonial Latin America (3)  
 HIST 3174 Resistance and Adaptation: Indian Peoples Under Spanish Rule (3)  
 or LTAM 3274 Resistance and Adaptation: Indian Peoples Under Spanish Rule (3)  
 HIST 3175 Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825 (3)  
 or LTAM 3275 Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825 (3)  
 HIST 3176 History of Mexico (3)  
 or LTAM 3276 History of Mexico (3)  
 HIST 3177 The Cuban Revolution (3)  
 or LTAM 3277 The Cuban Revolution (3)  
 HIST 3178 History of Brazil (3)  
 or LTAM 3278 History of Brazil (3)  
 HIST 3179 Authoritarianism in Latin America (3)  
 or LTAM 3279 Authoritarianism in Latin America (3)  
 HIST 3260 The United States and Latin America (3)  
 POLS 3144 Latin American Politics (3)  
 or LTAM 3144 Latin American Politics (3)  
 POLS 3155 Latin American Political Economy (3)  
 or LTAM 3154 Political Economy of Latin America (3)  
 POLS 3164 U.S.-Latin American Relations (3)  
 or LTAM 3164 U.S.-Latin American Relations (3)  
 SPAN 3019 Hispanic Women Writers in English Translation (3)  
 or LTAM 3319 Hispanic Women Writers in English Translation (3)  
 SPAN 3029 Cultural Dimension of Business with Spanish-Speaking Countries (3)  
 or LTAM 3129 Cultural Dimension of Business with Spanish-Speaking Countries (3)  
 SPAN 3160 Studies in Hispanic Film (3)  
 or LTAM 3360 Studies in Hispanic Film (3)  
 SPAN 3210 Spanish American Civilization and Culture (3)  
 or LTAM 3310 Spanish American Civilization and Culture (3)  
 SPAN 3212 Introduction to Spanish American Literature (3)  
 or LTAM 3312 Introduction to Spanish American Literature (3)  
 SPAN 4120 Advanced Business Spanish I (3)  
 or LTAM 4120 Advanced Business Spanish I (3)  
 SPAN 4121 Advanced Business Spanish II (3)  
 or LTAM 4121 Advanced Business Spanish II (3)  
 SPAN 4210 Studies in Spanish American Poetry (3)  
 or LTAM 4310 Studies in Spanish American Poetry (3)

SPAN 4211 Studies in Spanish American Prose Fiction (3)  
or LTAM 4311 Studies in Spanish American Prose Fiction (3)  
SPAN 4212 Studies in Spanish American Theater (3)  
or LTAM 4312 Studies in Spanish American Theater (3)

*\*Required course for major.*

*Note: Lists are subject to additions and deletions. Other courses may be considered, subject to approval of an advisor.*

### **Self-Designed Concentration**

Students choosing to focus their study around a particular issue, theme, or region not covered by the other area concentrations may do so with the prior advice and permission of an advisor and subject to the regular availability of sufficient courses and an appropriate foreign language.

### **Education Abroad Requirement**

Although not required for the minor, education abroad is encouraged and recommended. The Office of International Programs offers a range of programs of varying duration. Academic credits earned may be applied to the requirements of the minor, subject to approval by an advisor.

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## **Minor in Holocaust, Genocide, and Human Rights Studies**

The interdisciplinary Minor in Holocaust, Genocide, and Human Rights Studies (HGHR) consists of 18 hours, including a 3-hour introductory course and 15 hours divided among Subjects in Holocaust Studies; Subjects in Genocide, Violence, and Slavery; and Subjects in Civil and Human Rights. A student must have at least one course from each subject area. Alternate arrangements may be made by an advisor for the minor.



### **Program Requirements**

#### **Introductory Course (3 hours)**

HGHR 2100 Introduction to Holocaust, Genocide, & Human Rights Studies: War Peace, Justice, & Human Survival (3)

### **Holocaust Studies (minimum 3 hours)**

Students may choose from the following courses to satisfy the requirement of subjects in this area. An advisor for the Minor in HGHR may give permission for other courses to count as fulfilling this requirement.

GERM 3050 Studies in German Literature (3)  
HIST 3147 The Third Reich (3)  
HIST 3148 The Holocaust (3)

### **Genocide, Violence, and Slavery (minimum 3 hours)**

Students may choose courses from the following to satisfy requirements of subjects in this area. An advisor for the Minor in HGHR may give permission for other courses to count as fulfilling this requirement.

AFRS 3220 The Caribbean from Slavery to Independence (3)  
AFRS 3260 Slavery, Racism, and Colonialism in the African Diaspora  
ANTH 4616 Culture and Conflict in the Amazon (3)  
CJUS 4161 Violence and the Violent Offender (3)  
HIST 2105 American Slavery and Emancipation (3)  
HIST 2216 The Modern Middle East (3)  
HIST 3174 Resistance and Adaptation: Indian Peoples Under Spanish Rule (3)  
HIST 3175 Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825 (3)  
HIST 3218 Racial Violence, Colonial Times to Present (3)  
POLS 3133 Middle East Politics (3)  
RELS 3150 The Black Church/Civil Rights Movement (3)  
SOCY 3175 Crowds, Riots, & Disasters (3)  
WGST 3140 Domestic Violence (3)

### **Civil and Human Rights (minimum 3 hours)**

Students may choose courses from the following to satisfy requirements of subjects in this area. An advisor for the Minor in HGHR may give permission for other courses to count as fulfilling this requirement.

AFRS 3230 Poverty and Discrimination in African Diaspora in the Modern Era (3)  
GEOG 3250 World Food Problems (3)  
HIST 3179 Authoritarianism in Latin America (3)  
LTAM 4600 Seminar in Latin American Studies (3)  
PHIL 3910 Philosophy of War & Peace (3)  
WGST 3212 Women and Peacebuilding (3)

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# Department of History

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<http://history.uncc.edu>

History is the broadest and most integrative of all disciplines concerned with human beings and society. Today's historians use the research tools of the social sciences to understand and explain major events and changes in human experience over time. Yet history has always been considered one of the humanities, and it remains so because historians are concerned with issues of value and meaning, with the significance that historical events had for the lives of individuals and groups. Students of history gain an understanding of people, groups, and society and a sensitivity both to detailed research and the "big picture." Through the study of history, students can become better prepared for life in a rapidly changing world and a rapidly evolving economy.



Professions like law and medicine have always considered history an ideal undergraduate major because it emphasizes the essential intellectual skills: critical thinking, research, writing, and speaking. For these reasons history also remains a sound preparation for almost any undergraduate and a good choice for the typical student in America, who graduates with a basic education rather than specific job training. Whether you plan to teach, work in archives or museums, or pursue a career in government, law, international organizations, or business, the skills you learn as a historian will prove invaluable. The Department offers majors the premier track in Comprehensive Social Studies Teacher Licensure and opportunities in public history. Through the master's program, history majors can pursue their interests at the graduate level. (See the *UNC Charlotte Graduate Catalog*.)

## Study Abroad

Arrangements can be made for study abroad in Asia, Africa, Europe, Latin America, or Canada.

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## Bachelor of Arts in History

A Major in History leading to the B.A. degree requires a minimum of 30 credit hours of history courses.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (9 credit hours)

HIST 1121 European History since 1660

HIST 1160 U.S. History to 1865

or HIST 1161 U.S. History Since 1865

HIST 2600 History Skills Seminar

#### Restricted Elective Courses (18 credit hours)

Select 18 credit hours of elective courses. No more than 3 hours are at the 1000-level; at least 6 hours at the 3000-level; and 3 hours at the 4000-level. Of the elective coursework, at least 6 hours must be in Non-Western History (Asia, Africa, Latin America, or Middle East).

#### Additional Stipulations

Students working toward a second major may count up to 9 hours of credit from courses fulfilling requirements in that major towards requirements for the History degree. Students working toward a major/minor combination may count up to 6 hours of credit from courses used in the minor towards requirements for the Major in History. These stipulations include cross-listed courses, regardless of program designation under which the course was taken. Exceptions may be approved by the Department Chair upon consultation with the other major program. Students exercising this option should be aware that the accuracy of the online degree audit may be affected.

Transfer students are required to take at least 15 hours of history major coursework at UNC Charlotte.

#### Unrestricted Elective Courses

As needed.

#### Senior Seminar Course (3 credit hours)

HIST 4600 Senior Research Seminar (3)

### Degree Total = 120 Credit Hours

### Grade Requirements

Students must achieve a cumulative GPA of 2.0 in all history courses. Grades of C or above are required in

both HIST 2600 and HIST 4000, HIST 4001, HIST 4002, HIST 4003, or HIST 4004.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Teacher Licensure

The Department of History, in collaboration with the College of Education, offers the premier track to a North Carolina Professional I status Teaching License in History and Social Studies. The coursework for this licensure includes nearly equal numbers of content area courses in history and affiliated social studies supervised by the Department of History, and education courses supervised by the Department of Middle, Secondary, and K-12 Education. Students interested in teacher licensure should declare their intent with the Department of History as soon as possible to prevent unnecessary delays.

### Degree Requirements

Students seeking teacher licensure in History and Social Studies must complete:

- The requirements for the History major (please note that students seeking secondary certification in History Education must take both HIST 1160 and HIST 1161)
- 12 additional credit hours in Social Studies consisting of:
  - POLS 1110 American Politics (3)
  - POLS 1130 Comparative Politics (3) or POLS 1150 International Politics (3)
  - one ECON course
  - LBST 2102 Global and Intercultural Connections (3) (GEOG)
- 33 additional credit hours in Education (contact the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education for details)

### Grade Requirements

Students must obtain a grade of C or above for all History, Social Studies, and Education courses, as well as a cumulative GPA of 2.5 or above for admission to the College of Education, and a 2.75 GPA in History and Social Studies to be eligible for licensure.



## Honors Program

The Department of History offers an Honors Program that consists of a two-course sequence:

- HIST 4797 Honors Methods and Practice (3)
- HIST 4799 Honors Research and Thesis (3)

HIST 4799 is normally taken in the semester before graduation. Students considering Honors in History should note that HIST 4797 will fulfill the requirement for HIST 4000, HIST 4001, HIST 4002, HIST 4003, or HIST 4004; and completion of HIST 4799 will fulfill the requirement for HIST 4600.

### Admission

Entry into all honors courses is by permission of the department only, and requires the completion of HIST 2600 (Historical Skills Seminar) with a grade of A, as well as a GPA of 3.50 in History and 3.0 overall. Because HIST 4797 is taught in the fall only, students must complete their application to the History Honors Program well before their expected graduation. For this reason, qualified students are urged to discuss the History Honors Program with the Department's Honors Director early in their career. Students must also formally apply and be approved for Honors Candidacy by the Honors Council, a process which will be initiated as part of the HIST 4797 course.

### Certification Requirements

To be awarded Honors in History, candidates must write an Honors thesis of A quality (and thus a grade of A for HIST 4799) as judged by a committee of readers. In addition, the student must complete HIST 4797 and HIST 4799 with a 3.50 GPA or above, obtain a GPA of 3.50 or above in History courses, and an overall GPA of at least 3.0.

The honors notation will appear on a student's official transcript.

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## Minor in History

### Program Requirements

A Minor in History consists of 18 credit hours, including:

- HIST 1121 European History Since 1660 (3)
- No more than 6 additional credit hours at the 1000-level\*
- At least 9 credit hours selected from courses above the 1000-level\*

*\*Of the elective coursework, at least 3 credit hours must be in Non-Western History (Asia, Africa, Latin America, or Middle East).*

### Grade Requirements

Students must achieve a minimum GPA of 2.0 in all HIST courses. Transfer students are required to take at least 6 credit hours of Minor in History coursework at UNC Charlotte.

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# Humanities, Technology, and Science

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<http://htas.uncc.edu>

## Minor in Humanities, Technology, and Science

The interdisciplinary Minor in Humanities, Technology, and Science examines the interrelationships among three of the major dimensions of our culture: its science, its technology, and its humanistic orientation.

A minimum of 18 credit hours are required for this minor, including:

### Program Requirements

#### Introductory Course (3 hours)

HTAS 2100 Introduction to Humanities, Technology, and Science (3)

#### History and/or Philosophy of Science or Technology (6 hours)

HIST 2110 Technology and Science in Society I:  
Before the Industrial Revolution (3)

HIST 2111 Technology and Science in Society II:  
Since the Industrial Revolution (3)

PHIL 3520 Philosophy of Science (3)

PHIL 3920 Philosophy of Technology (3)

#### Elective Courses (9 credit hours)

ANTH 2151 Introduction to Archaeology (3)

ANTH 3122 Culture, Health, and Disease (3) (W)

ANTH 3124 Food, Nutrition, and Culture (3)

ANTH 3152 Early Civilizations (3)

ANTH 3222 Culture, Health, and Disease (3)

CJUS 3310 Punishment and Freedom (3)

CJUS 4110 Computer Crime (3)

COMM 3052 Topics in Mass Media (3)

COMM 3120 Communication and Mass Media (3)

COMM 3121 Mass Communication and Society (3)

ENGL 2116 Introduction to Technical Communication  
(3) (W)

ENGL 3180 Language and Digital Technology (3)

ENGL 4008 Topics in Advanced Technical  
Communication (3)

ESCI 2101 The Environmental Dilemma (3)

GEOG 3250 World Food Problems (3)

HIST 2120 American Military History (3)

HIST 2140 Disease and Medicine in History (3)

HIST 3155 Health and Healing in Africa (3)

HONR 3701 Science, Technology, and Human Values (3)  
HTAS 3800 Independent Study in Humanities, Technology, and Science (3)  
ITCS 3688 Computers and Their Impact on Society (3)  
ITIS 3130 Human-Computer Interaction (3)  
POLS 3154 Cyberspace and Politics (3)

Other courses that do not appear on the above list, especially topics and independent study courses, will be approved if they are pertinent to the student's program and deal with an HTAS topic. Examples of such courses approved by their departments for enrollment by HTAS students are:

ARCH 4050 Architecture Elective – Topics (3)  
HIST 3001 Topics in European History (3)  
HIST 3002 Topics in Non-Western History (3)  
POLS 3030 Topics in Comparative or International Politics (3)  
THEA 4001 Topics in Theater (3) (W)

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# Department of Languages and Culture Studies

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<http://languages.uncc.edu>

The Department of Languages and Culture Studies has designed its programs to develop language skills and to provide insights into foreign cultures through the study of language, culture, literature, and translation. The Department offers the Bachelor of Arts degree with Majors in French, German, Japanese, and Spanish, and Minors in Chinese, French, German, Italian, Japanese, Russian, Spanish, and Classical Studies.



Certificates are offered in Translating and Business Language. Arabic, Chinese, and Portuguese are offered regularly, and Classical Greek, Hebrew, and other languages are offered on demand. The department also offers Yoruba and Swahili through its self-instructional program, and Modern Greek.

Students interested in foreign language study are encouraged to explore the following options:

- A single major in French, German, Japanese, or Spanish, based on the standard liberal arts model, with or without teaching licensure
- A double major in a foreign language and another discipline or in two languages
- A foreign language minor
- A concentration in one or more languages to complement a major in another academic area
- A concentration of courses leading to a Certificate in Translating or Business Language

## Scholarships, Study Abroad, Awards

Scholarships for study and employment abroad are available to UNC Charlotte students of French, German, Japanese, Russian, and Spanish. As a rule, applicants are required to be language majors or minors, or students in a departmental certificate program, to be eligible, and they must have completed the equivalent of at least two years of study in the language they propose to use abroad. The Department strongly encourages all students to participate in a study abroad program and sponsors exchange

programs with universities in Brazil, Chile, China, France, Germany, Japan, Mexico, Poland, Russia, and Spain. The Department regularly presents the following awards: the Mary Jim Whitlow Award for Outstanding Student Achievement in Language Study; the Pierre Macy Award for Excellence in French; the Karl Gabriel, Robert Reimer, Charles Merrill, and Susan Cernyak-Spatz Scholarships for Excellence in German and Service to the German Program; and La Noticia Scholarship for Spanish. For detailed information, contact the Department of Languages and Culture Studies.



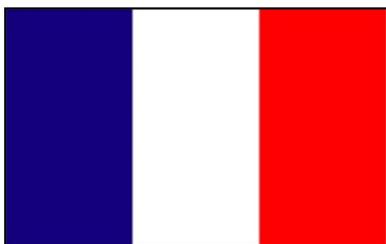
## Bachelor of Arts in French

The Major in French offers two options: **Option A** for those with a single major and/or seeking teacher licensure, and **Option B** for those with a double major.

### Additional Admission Requirements

All incoming students except learners of Japanese may take a UNC Charlotte Placement Exam in the language they wish to study if they have had previous experience with that language.

Foreign language majors and minors may also take a placement exam to help them determine at what level they should begin studying



their chosen language. Students should consult the department's webpages for more specific guidelines regarding placement. Learners of Japanese should contact a Japanese professor directly in order to schedule an interview regarding placement.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. All foreign language majors must take at least one (W) course offered within the department. Any (W) course offered within the department counts as a writing-intensive course in the major required by General Education.

### Major Courses

#### Option A

***For non-native speakers of French with a single major and/or seeking teacher licensure:***

- FREN 2201 Intermediate French I (3)
- FREN 2202 Intermediate French II (3)
- FREN 3201 French Grammar and Conversation (3) (0)
- FREN 3202 French Grammar and Composition (3)
- FREN 3209 France Today (3)

*Select two of the following three courses:*

- FREN 3203 Introduction to French Literature (3)
- FREN 3207 French Phonetics (3)
- FREN 3210 Introduction to Business French (3)

*Plus:*

- Four additional FREN courses at the 4000-level\*
- LACS 4690 Senior Seminar (1)

***For native speakers of French with a single major and/or seeking teacher licensure:***

*Select two of the following three courses:*

- FREN 3203 Introduction to French Literature (3)
- FREN 3207 French Phonetics (3)
- FREN 3210 Introduction to Business French (3)

*Plus:*

- FREN 3209 France Today (3)
- Six additional FREN courses at the 4000-level\*
- LACS 4690 Senior Seminar (1)

Related work is to be approved by the department.

#### Option B

***For non-native speakers of French with a double major:***

- FREN 2201 Intermediate French I (3)
- FREN 2202 Intermediate French II (3)
- FREN 3201 French Grammar & Conversation (3) (0)
- FREN 3202 French Grammar and Composition (3)
- FREN 3209 France Today (3)

*Select two of the following three courses:*

- FREN 3203 Introduction to French Literature (3)
- FREN 3207 French Phonetics (3)
- FREN 3210 Introduction to Business French (3)

*Plus:*

- Two additional FREN courses at the 4000-level\*
- LACS 4690 Senior Seminar (1)
- All courses required for the second major

***For native speakers of French with a double major:***

*Select two of the following three courses:*

- FREN 3203 Introduction to French Literature (3)
- FREN 3207 French Phonetics (3)
- FREN 3210 Introduction to Business French (3)

Plus:

FREN 3209 France Today (3)  
Five additional FREN courses at the 4000-level\*  
LACS 4690 Senior Seminar (1)  
All courses required for the second major

*\*Non-native speakers of French may substitute two TRAN-F courses for 4000-level French courses for Option A and one TRAN-F course for a 4000-level course for Option B. Native speakers of French may substitute three TRAN-F courses for 4000-level French courses for Option A and two TRAN-F courses for a 4000-level course for Option B.*

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

Introductory language courses may not be taken on a *Pass/No Credit Basis* if they are being used to fulfill a college or departmental foreign language requirement. Students with a Foreign Language major or minor may not take required courses in the department on a *Pass/No Credit Basis*.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Teacher Licensure

The Department of Languages and Culture Studies, in collaboration with the Department of Middle, Secondary, and K-12 Education, offers a program to prepare students for K-12 teacher licensure in North Carolina. Students seeking licensure to teach a foreign language must fulfill the General Education requirements, the foreign language major, two foreign language teaching methods courses, and satisfy all other requirements specified by the College of Education. Students planning to specialize in foreign language education should apply through the Coordinator for Foreign Language Education during the first semester of the Sophomore year to obtain appropriate advising. Licensure applications are the responsibility of the student and the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.

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## Bachelor of Arts in German

A Major in German leading to a B.A. degree requires 32 credit hours, after beginning courses are completed.

## Additional Admission Requirements

All incoming students except learners of Japanese may take a UNC Charlotte Placement Exam in the language they wish to study if they have had previous experience with that language.

Foreign language majors and minors may also take a placement exam to help them determine at what level they should begin studying their chosen language.

Students should consult the department's webpages for more specific guidelines regarding placement. Learners of Japanese should contact a Japanese professor directly in order to schedule an interview regarding placement.



## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. All foreign language majors must take at least one (W) course offered within the department. Any (W) course offered within the department counts as a writing-intensive course in the major required by General Education.

### Major Courses (32 credit hours)

GERM 2201 Intermediate German I (3)  
GERM 2202 Intermediate German II (3)  
or GERM 2210 German in the Workplace (3)  
GERM 3030 Studies in German Culture (3) (W)^  
GERM 3050 Studies in German Literature (3)\*^  
GERM 3201 Advanced German Grammar, Composition, and Conversation I (3) (O)  
GERM 3202 Advanced German Grammar, Composition, and Conversation II (3)  
GERM 4010 Periods in the History of German Literature (3)  
or GERM 4020 The Chief Genres in German Literature (3)  
GERM 4203 Survey of German Literature I (3)  
or GERM 4204 Survey of German Literature II (3)  
One additional 3000- or 4000-level GERM course

*^German majors must enroll concurrently for one hour of GERM 4050 (Special Topics in German) for each GERM 3030 or GERM 3050 course they take, unless that course was offered in the German language.*

*\*Students must take two courses of GERM 3050 under two different topics. GERM 3160 (Survey of German Film) may be substituted for one GERM 3050.*

### Related Courses (15 credit hours)

In addition, 15 hours of related coursework (or a

declared minor), approved by the German language staff, is required. Candidates for teacher licensure must also take two foreign language teaching methods courses offered jointly between the Department of Languages and Culture Studies and the College of Education, and satisfy all other requirements specified by the College of Education.

### Course Substitutions

#### *Certificate in Translating Substitutions*

Students majoring in German and seeking a Certificate in Translating German must also take TRAN 3401, TRAN 4402G, TRAN 4403G, and TRAN 4404G, but may eliminate two GERM courses at the 3xxx and one course at the 4xxx level from the requirements for the major listed above.

#### *Certificate in Business German Substitutions*

Students majoring in German and seeking a Certificate in Business German must take GERM 2210, GERM 4120, and GERM 4121, but may eliminate one of the GERM 3050 courses and one other course at the GERM 3000/4000-level from the requirements for the majors listed above. Upon departmental approval, up to three credit hours earned for GERM 4410 (Professional Internship) may replace one of the GERM 3000-4000-level courses.

### Unrestricted Elective Courses

As needed.

### Degree Total = 120 Credit Hours

### Grade Requirements

Introductory language courses may not be taken on a *Pass/No Credit Basis* if they are being used to fulfill a college or departmental foreign language requirement. Students with a Foreign Language major or minor may not take required courses in the department on a *Pass/No Credit Basis*.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Teacher Licensure

The Department of Languages and Culture Studies, in collaboration with the Department of Middle, Secondary, and K-12 Education, offers a program to prepare students for K-12 teacher licensure in North Carolina. Students seeking licensure to teach a foreign language must fulfill the General Education requirements, the foreign language major, two foreign language teaching methods courses, and satisfy all other requirements specified by the College of Education. Students planning to specialize in foreign

language education should apply through the Coordinator for Foreign Language Education during the first semester of the Sophomore year to obtain appropriate advising. Licensure applications are the responsibility of the student and the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.

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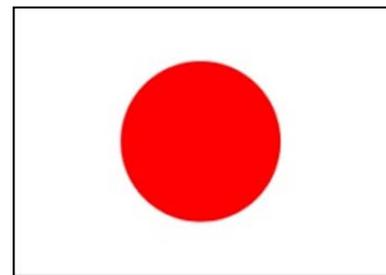
## Bachelor of Arts in Japanese Studies

A Major in Japanese Studies leads to a B.A. degree.

### Additional Admission Requirements

All incoming students except learners of Japanese may take a UNC Charlotte Placement Exam in the language they wish to study if they have had previous experience with that language. Foreign language majors and minors may also take a placement exam to help them determine at what level they should begin studying their chosen language.

Students should consult the department's webpages for more specific guidelines regarding placement. Learners of Japanese should contact a Japanese professor directly in order to schedule an interview regarding placement.



### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. All foreign language majors must take at least one (W) course offered within the department. Any (W) course offered within the department counts as a writing-intensive course in the major required by General Education.

#### Major Courses (35 credit hours)

JAPN 2201 Intermediate Japanese I (4)  
JAPN 2202 Intermediate Japanese II (4)  
JAPN 3160 Topics in Japanese Film (3) (W)  
JAPN 3201 Upper Intermediate Japanese I (4)  
JAPN 3202 Upper Intermediate Japanese II (4)  
JAPN 4050 Topics in Japanese (3)  
    or JAPN 4150 Studies in Japanese Language (3)  
    or TRAN 4402J Practicum in Translating I - Japanese (3)  
JAPN 4100 JLPT Prep (3)  
JAPN 4300 Introductory Research Project (3)  
LACS 4690 Senior Seminar (1)  
Six credits at the JAPN 2000-, 3000-, or 4000-level (approved by advisor)

## Exam

An oral exam is administered by the staff and based on the proficiency standards of the American Council on the Teaching of Foreign Language (ACTFL). Reading, writing, and listening competencies, as well as Japanese grammatical knowledge, will be assessed according to internationally accredited Japanese Proficiency Language Test (JLPT) standards.

## Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

## Grade Requirements

Introductory language courses may not be taken on a *Pass/No Credit Basis* if they are being used to fulfill a college or departmental foreign language requirement. Students with a Foreign Language major or minor may not take required courses in the department on a *Pass/No Credit Basis*.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Teacher Licensure

The Department of Languages and Culture Studies, in collaboration with the Department of Middle, Secondary, and K-12 Education, offers a program to prepare students for K-12 teacher licensure in North Carolina. Students seeking licensure to teach a foreign language must fulfill the General Education requirements, the foreign language major, two foreign language teaching methods courses, and satisfy all other requirements specified by the College of Education. Students planning to specialize in foreign language education should apply through the Coordinator for Foreign Language Education during the first semester of the Sophomore year to obtain appropriate advising. Licensure applications are the responsibility of the student and the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.

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## Bachelor of Arts in Spanish

The B.A. degree in Spanish offers two concentrations: 1) literature/culture and 2) applied language (Business Spanish and Translating). Each concentration consists of 30 hours of courses in Spanish (9 hours of core courses and 21 hours of emphasis courses), plus a one-hour Senior Seminar (LACS 4690). Students majoring in Spanish are strongly encouraged to take courses in another language at least through the Intermediate level.

## Additional Admission Requirements

All incoming students except learners of Japanese may take a UNC Charlotte Placement Exam in the language they wish to study if they have had previous experience with that language.

Foreign language majors and minors may also take a placement exam to help them determine at what level they should



begin studying their chosen language. Students should consult the department's webpages for more specific guidelines regarding placement. Learners of Japanese should contact a Japanese professor directly in order to schedule an interview regarding placement.

## Degree Requirements

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. All foreign language majors must take at least one (W) course offered within the department. Any (W) course offered within the department counts as a writing-intensive course in the major required by General Education.

### Major Courses (9 credit hours)

SPAN 3201 Advanced Grammar and Composition (3)\*

SPAN 3202 Advanced Conversation and Composition (3)\*

SPAN 3208 Introduction to Literary Analysis (3)

*\*SPAN 3203 plus one additional 3000/4000-level SPAN course may substitute for both SPAN 3201 and 3202.*

### Concentration Courses (22 credit hours)

#### *Literature/Culture Concentration*

SPAN 3209 Spanish Civilization and Culture (3)

or SPAN 3210 Spanish American Civilization and Culture (3)

SPAN 3211 Introduction to Spanish Peninsular Literature (3)

SPAN 3212 Introduction to Spanish American Literature (3)

12 credit hours (4 courses) of Spanish at the 4000-level (at least three of these courses must be in literature/culture (e.g., SPAN 4201, SPAN 4202, SPAN 4205, SPAN 4206, SPAN 4210, SPAN 4211, SPAN 4212, SPAN 4213, SPAN 4214, SPAN 4215, SPAN 4216, SPAN 4217))

LACS 4690 Senior Seminar (1)

#### *Applied Language Concentration*

SPAN 3209 Spanish Civilization and Culture (3)

or SPAN 3210 Spanish American Civilization and Culture (3)

SPAN 3211 Introduction to Spanish Peninsular Literature (3)

or SPAN 3212 Introduction to Spanish American Literature (3)

SPAN 3220 Spanish for Business and International Trade (3)

12 credit hours (4 courses) of additional SPAN or TRAN 4000-level courses (at least three of these courses must be in applied Spanish (e.g., SPAN 4120, SPAN 4121, SPAN 4122, SPAN 4231, SPAN 4232, SPAN 4233, TRAN 4402S, TRAN 4403S, TRAN 4404S))

LACS 4690 Senior Seminar (1)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

Introductory language courses may not be taken on a *Pass/No Credit Basis* if they are being used to fulfill a college or departmental foreign language requirement. Students with a Foreign Language major or minor may not take required courses in the department on a *Pass/No Credit Basis*.

Only courses in which a student has earned a grade of C or above may count toward the Spanish major.

### Honors Program

For those students who maintain a 3.5 GPA after 21 hours in either of these major tracks, the Department offers an Honors option. Students who choose to participate in the Spanish Honors Program must complete an additional 6 hours by having a 6-hour or longer study abroad experience **or** a professional internship experience of 6 hours (SPAN 4410) or both a 3-hour study abroad and a 3-hour internship or service learning experience. Honors students must also take SPAN 4400, where they will write an Honors thesis that must be defended before the departmental Honors Committee. In addition, students in the Honors option must also study another language at least through 2202 (the end of the Intermediate level). The honors notation will appear on a student's official transcript.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### Teacher Licensure

The Department of Languages and Culture Studies, in

collaboration with the Department of Middle, Secondary, and K-12 Education, offers a program to prepare students for K-12 teacher licensure in North Carolina. Students seeking licensure to teach a foreign language must fulfill the General Education requirements, the foreign language major, two foreign language teaching methods courses, and satisfy all other requirements specified by the College of Education. Students planning to specialize in foreign language education should apply through the Coordinator for Foreign Language Education during the first semester of the Sophomore year to obtain appropriate advising. Licensure applications are the responsibility of the student and the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.

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## Minor in Chinese

The Minor in Chinese consists of a minimum of 20 credit hours (6 courses) above the 1202 level (i.e., above beginning language instruction).

### Program Requirements (20 credit hours)

#### Intermediate Level Courses (8 hours)

CHNS 2201 Intermediate Chinese I (4)

CHNS 2202 Intermediate Chinese II (4)

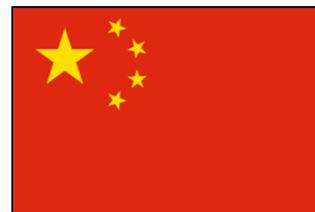
#### Advanced Level Courses (6 hours)

CHNS 3201 Chinese Grammar and Conversation I (3)

CHNS 3202 Chinese Grammar and Conversation II (3)

#### Elective Courses (6 hours)

Students choose two elective classes at the 3000-level in Chinese language, literature, film, and/or culture, taken either at UNC Charlotte or abroad. The elective classes must either be taught in the language or be accompanied by a one-hour additional language component in order to count toward the minor.



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## Minor in Classical Studies

The Minor in Classical Studies focuses a student's interest in ancient Mediterranean history and provides a foundation for advanced work in other academic disciplines as well as professional programs in law, medicine and finance. The minor gives students an opportunity to develop a keener perception and better understanding of the cultural forces at work in the contemporary world. By presenting a broad selection of courses in the various disciplines of literature, philosophy and history, the minor provides students with a sound overview of Western antiquity.

## Program Requirements

The minor requires a minimum of 18 hours of coursework distributed over at least three of the following five areas of study:

- 1) *Languages*: LATN 1202 or higher, or GREK 1202 or higher.
- 2) *Ancient Material Culture*: For example, ARTH 3320 – Egypt and Ancient near Eastern Art; ARTH 3322 – Ancient Greek Art; ARTH 3323 – Ancient Roman Art; ANTH 2152 – Introduction to Archaeology; ANTH 3152 – Early Civilizations; any pre-approved, structured tour of Italy or Greece granting official academic credit from a recognized post-secondary institution.
- 3) *Ancient History*: For example, HIST 3101 History of Greece, HIST 3102 History of Rome
- 4) *Greek and Roman Literature*: For example, RELS 3101 Greek Myths and Religion, ENGL 4111 Ancient World Literature
- 5) *Greek and Roman Thought*: For example, POLS 3171 History of Classical Political Philosophy, PHIL 3010 Ancient Philosophy, PHIL 3110 Medieval Philosophy.

This is not an exhaustive list of courses that may be applied to the degree. There are many LBST 2101 and LBST 2212 courses that may be appropriate for the Ancient History. Other courses, such as topics courses and private readings that focus on subjects from Western antiquity may be approved in any of the categories by the classics coordinator in the Department of Languages and Culture Studies. To make a request for course approval, submit the syllabus to the coordinator.

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## Minor in Francophone Studies



The Minor in Francophone Studies allows students interested in topics related to the French-speaking world the opportunity to acquire a basic level of cultural competency by taking courses taught in English and offered across a range of disciplines; including, but not limited to: Africana Studies, Film, History, Latin American

Studies, Languages and Culture Studies, Philosophy, and Women's Studies. In addition to fostering critical thinking and other transferable skills, the broad base of knowledge about Francophone-related topics that students acquire in this minor positions them to work for companies and agencies that serve the growing Francophone population in our region and worldwide. Career possibilities include: 1) the foreign service, the military, and other governmental agencies; 2) non-governmental organizations with an emphasis on international or cross-cultural orientations; and 3) international business.

## Program Requirements

Students must complete a minimum of 15 credit hours in courses approved for Francophone Studies credit.

### Core Course (3 hours)

FRAN 2200 French Civilization (3)

### Elective Courses (12 hours)

Students must choose four of the following electives, three of which must be taken at the 3000-level or above. 3000-level courses may be repeated with a change of topic.

FRAN 2050 Topics in Francophone Studies (3)

FRAN 3001 Advanced Topics in Francophone Studies (Economy and Society) (3)

FRAN 3002 Advanced Topics in Francophone Studies (Historical Context) (3)

FRAN 3003 Advanced Topics in Francophone Studies (Arts and Literature) (3)

FRAN 3004 Advanced Topics in Francophone Studies (Film) (3)

FRAN 3005 Advanced Topics in Francophone Studies (Philosophy and Intellectual History) (3)

## Foreign Language Requirement

Students must demonstrate linguistic competency equivalent to three semesters of French language (FREN 2200, FREN 2201, FREN 2210, or equivalent) prior to completion of the minor.

## Study Abroad Experience

Courses taken while studying abroad may count toward the Minor in Francophone Studies. To learn more about programs in Martinique and Limoges, France, contact the program director.

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## Minor in French

A Minor in French requires seven courses above the FREN 1202 level.

### Required Courses (21 hours)

FREN 2201 Intermediate French I (3)

FREN 2202 Intermediate French II (3)

FREN 3201 French Grammar and Conversation (3) (O)  
FREN 3202 French Grammar and Composition (3)  
FREN 3209 France Today (3)

Select two of the following three courses:

FREN 3203 Introduction to French Literature (3)  
FREN 3207 French Phonetics (3)  
FREN 3210 Introduction to Business French (3)

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## Minor in German

A Minor in German requires six courses above the 1202 level.

### Required Courses (18 hours)

GERM 2201 Intermediate German I (3)\*  
GERM 2202 Intermediate German II (3)\*  
GERM 3201 Advanced German Grammar, Composition, and Conversation I (3) (O)  
GERM 3202 Advanced German Grammar, Composition, and Conversation II (3)  
Two additional courses at the 3000- or 4000-level (6)

\*A student waived from GERM 2201 and/or GERM 2202 must take the equivalent number of hours in 3000- or 4000-level courses.

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## Minor in Italian

A Minor in Italian consists of 18-20 credits (six 3-credit courses and up to two 1-credit courses) above the 1202 level.

### Required Courses (18-20 hours)

ITLN 2201 Intermediate Italian I (3)  
ITLN 2202 Intermediate Italian II (3)  
ITLN 3201 Italian Grammar and Conversation (3)  
ITLN 3202 Italian Grammar and Composition (3)

Plus six hours from the following\*:

ITLN 3050 Topics in Italian (3) (W)  
ITLN 3051 Topics in Italian (1-3)

\*Students may take ITLN 3050 and ITLN 3051, ITLN 3050 twice, or ITLN 3051 twice, for a total of 6 credits.

When the topics classes are not taught in Italian, they will be taken concurrently with a one-hour additional language component (ITLN 3051, 1 credit) in order to count toward the minor.



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## Minor in Japanese

A Minor in Japanese requires the completion of six courses and at least 22 hours above the 1202 level.

### Required Courses (16 hours)

JAPN 2201 Intermediate Japanese I (4)  
JAPN 2202 Intermediate Japanese II (4)  
JAPN 3201 Upper Intermediate Japanese I (4)  
JAPN 3202 Upper Intermediate Japanese II (4)

### Content Courses (6 hours)

Students select one of the following options:

- 1) Two Primary Content Courses\*
- 2) One Primary Content Course\* and one Secondary Content Course\*\*

\*Primary Content Courses:

JAPN 2209 Introduction to Japanese Civilization and Culture (3)  
JAPN 3130 Business and Culture in Japan (3)  
JAPN 3140 Anime and Japanese Popular Culture (3)  
JAPN 3160 Topics in Japanese Film (3) (W)

\*\*Secondary Content Courses:

LACS 2050 Topics in Foreign Language (1-4)  
JAPN 3105 Japanese Immersion - Communication Skills Development (3)  
JAPN 3800 Directed Individual Study (1-3)

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## Minor in Russian

A Minor in Russian consists of six courses (20 credit hours) above the RUSS 1202 level.



### Required Courses

RUSS 2201 Intermediate Russian I (4)  
RUSS 2202 Intermediate Russian II (4)  
RUSS 3201 Advanced Russian Grammar, Composition, and Conversation I (3)  
RUSS 3202 Advanced Russian Grammar, Composition, and Conversation II (3)  
RUSS 3204 Masterpieces of Russian Literature (3) (W)\*  
RUSS 3209 Russian Civilization and Culture (3) (W)\*

\*RUSS 3060 and/or RUSS 3061, when taken for 3 credit hours, may count toward the minor in place of RUSS 3204 and/or RUSS 3209.

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## Minor in Spanish

A Minor in Spanish consists of six courses above the 2202 level. Only courses in which a student has earned a grade of C or above may count toward the Minor in Spanish.

### Required Courses (15 hours)

SPAN 3201 Advanced Spanish Grammar and Composition I (3)\*  
SPAN 3202 Advanced Spanish Conversation and

Composition II (3)\*  
SPAN 3208 Introduction to Literary Analysis (3)  
Two additional courses at the 3000- or 4000-level (6)

*\*Native and heritage speakers of Spanish may take SPAN 3203 (Advanced Writing and Rhetoric for Native Speakers) in lieu of SPAN 3201 and SPAN 3202, but they must also take one additional 3000- or 4000-level Spanish course.*

## Certificate in Business Languages

The Certificate in Business Language program (CBL) provides classroom, overseas (optional), and practical training in French, German, or Spanish for international business, which may also be recognized by international examinations. Beginning with an alternative fourth-semester course, the sequence continues with advanced-level coursework that includes a two-semester component in advanced business French, German, or Spanish. In order to be awarded the CBL, each course that counts for the certificate must be completed with a grade of B or above. Majors in any field are welcome.

## Certificate in Translating

A Certificate in Translating (CT) is not equivalent to a major in a foreign language; rather it represents a theory-based skill developed at the bachelor's degree level. The CT may complement a major in any field, and is especially recommended for Majors and Minors in French, German, Russian, Spanish, International Studies, or International Business. All courses for the CT involve, but are not limited to, translating into English from the source text.

### Program Requirements

A CT in the French-English, German-English, Russian-English, or Spanish-English sequences may be earned by completing 12 credit hours of the following courses.

TRAN 3401 Introduction to Translation Studies (3)

*One of the following:*

TRAN 4402F Practicum in Translating I - French (3)  
TRAN 4402G Practicum in Translating I - German (3)  
TRAN 4402R Practicum in Translating I - Russian (3)  
TRAN 4402S Practicum in Translating I - Spanish (3)

*One of the following:*

TRAN 4403F Practicum in Translating II - French (3)  
TRAN 4403G Practicum in Translating II - German (3)  
TRAN 4403R Practicum in Translating II - Russian (3)  
TRAN 4403S Practicum in Translating II - Spanish (3)

*One of the following:*

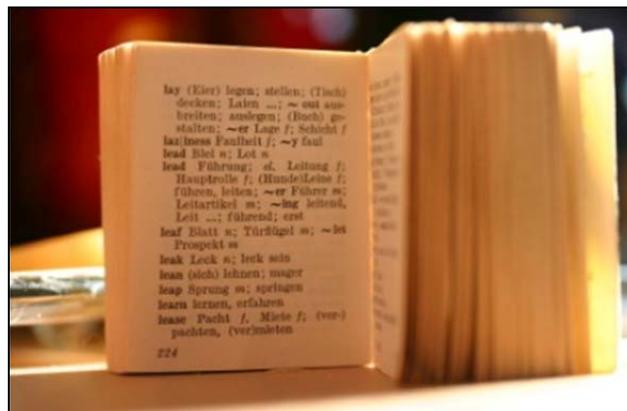
TRAN 4404F Practicum in Translating III - French (3)  
TRAN 4404G Practicum in Translating III - German

(3)  
TRAN 4404R Practicum in Translating III - Russian

(3)  
TRAN 4404S Practicum in Translating III - Spanish (3)

## Grade Requirements

All courses must be completed with a grade of B or above.



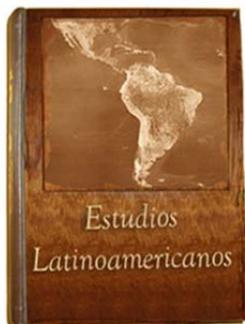
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# Latin American Studies

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<http://latinamericanstudies.uncc.edu>

Latin American Studies is an interdisciplinary program which involves a variety of fields, including African-American Studies, anthropology, Spanish and Portuguese language, literature and culture, history, philosophy, and political science. It also includes substantial training and education in Spanish and/or Portuguese. Students may either earn a Major (Bachelor of Arts) or a Minor in Latin American Studies.



Graduates of Latin American Studies (1) pursue graduate study in the humanities, social sciences, and law; (2) work for companies and agencies serving the growing Hispanic population of our region; and (3) find careers in the Foreign Service, the military, and other governmental agencies; in non-governmental organizations with an international or cross-cultural orientation; and in international business.

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## Bachelor of Arts in Latin American Studies

### Additional Admission Requirements

Students declaring a Latin American Studies major must meet all requirements for undergraduate admission to the university. Students matriculated at UNC Charlotte and planning to change to or declare Latin American Studies as their major must have an overall GPA of at least 2.0. Transfer students from other institutions must meet all general requirements for admission to the University. Matriculated and transfer students who do not meet requirements for



admission to the program because of special circumstances may petition the coordinator for acceptance into the program.

Students applying for admission to the University and acceptance into the Latin American Studies program must submit all documents specified in the current *Catalog*. Matriculated students requesting acceptance into the Latin American Studies program must complete the University Declaration of Major form. Students seeking to apply coursework taken at other institutions to the Latin American Studies major must provide a copy of the official course description for each course requested for consideration.

### Degree Requirements

The program leading to the Bachelor of Arts degree in Latin American Studies is a 120 credit-hour program, including completion of all General Education Requirements and at least 30 credit hours in courses approved for Latin American Studies credit.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foreign Language Courses (6 credit hours)

Students are expected to demonstrate competency in Spanish by completion of two courses at the 3000-level or above, or a combination of Portuguese through the 2000-level and reading knowledge in Spanish equivalent to the completion of SPAN 2050.

### Foundation Course (3 credit hours)

LTAM 1100 Introduction to Latin America (3 hours)

### Major Courses (minimum 24 credit hours)

Select two to three courses from each of the following three perspectives (minimum of 24 credit hours):

#### *Economy and Society Courses (6-9 credit hours)*

Courses in this perspective emphasize social science approaches to the study of contemporary Latin America such as anthropology, political science, and business language. Economy and Society courses are designated in the LTAM course catalog by the numbers 21xx, 31xx, 41xx.

Examples include:

LTAM 2116 Contemporary Latin America (3)

LTAM 3144 Latin American Politics (3)

LTAM 4120 Advanced Business Spanish I (3)

#### *Historical Context Courses (6-9 credit hours)*

Courses in this perspective focus on the historical development of Latin America since Pre-Columbian times, and they include courses in History and Archaeology. Students must take at least one course on pre-Columbian and/or colonial Latin America. Historical Context courses are designated in the LTAM course catalog by the numbers 22xx, 32xx, and 42xx. One of these courses must focus on the pre-colonial

and/or colonial periods.

Examples include:

LTAM 2206 Colonial Latin America (3)

LTAM 3276 History of Mexico (3)

### ***Literature and the Arts Courses (6-9 credit hours)***

Courses in this perspective study the cultural production of Latin American peoples such as the arts, literature and film, and they include courses in Art History, Spanish, and Film Studies. Literature and the Arts courses are designated in the LTAM course catalog by the numbers 23xx, 33xx, and 43xx.

Examples include:

LTAM 3360 Studies in Hispanic Film (3)

LTAM 4311 Studies in Spanish American Prose

Fiction (3)

### **Study Abroad or Work Experience (3-6 credit hours)**

Students are required to complete a study abroad or work experience in Latin American Studies. This may be fulfilled through participation in any one of the following:

#### **1) Study Abroad**

A formal study-abroad program of at least 45 contact hours equaling 3 hours of academic credit.

#### **2) Work, Service, or Internship**

At least 135 hours of work, service, or internship activities in Latin America or with Latino populations in the United States. 3 hours of academic credit for this option are available by enrolling in LTAM 3400 (Internship in Latin American Studies).

#### **3) Coursework in Another Latin American Language**

In addition to the foreign language requirement above, students may fulfill this option by completing 6 credit hours in Spanish, Portuguese, or French. Students may also elect to complete 3 credit hours in an indigenous language such as Yucatec Maya, Náhuatl, or Quechua. As the latter languages are currently not taught at UNC Charlotte, interested students would need to enroll in an off-campus program.

Academic credits earned in the course of fulfilling this requirement may be applied to the requirements of the major. At the discretion of an advisor, prior international experience may be considered.

### **Unrestricted Elective Courses**

As needed.

### **Senior Seminar Course (3 credit hours)**

LTAM 4600 Seminar in Latin American Studies (3)

This seminar may only be taken after completion of at

least 18 hours in the major, including LTAM 1100, and fulfillment of the language requirement. As the topic of this course varies, it may be taken more than once to fulfill an elective requirement. In that case, the first LTAM 4600 will fulfill a thematic requirement, and the second course will fulfill the capstone requirement.

### **Second Major (up to 9 credit hours)**

Students doing a second major may count up to 9 hours of credit from courses fulfilling requirements in that major towards requirements for the Latin American Studies degree. Students doing a major/minor combination may count up to 6 hours credit from courses used in the minor towards the requirements for the Major in Latin American Studies. These stipulations

include cross-listed courses regardless of program designation under which the course was taken. Exceptions may be approved by



an advisor upon consultation with the other program or department. *Note: Students exercising this option should be aware that the accuracy of the online degree audit may be affected.*

Students may take LTAM 2001, LTAM 2002, or LTAM 2003 (Topics in Latin American Studies); or LTAM 3001, LTAM 3002, or LTAM 3003 (Advanced Topics in Latin American Studies) to help fulfill these requirements. As the topics of these courses vary, students may repeat them for credit. An advisor will determine which perspective(s) a given section of LTAM 2001, LTAM 2002, LTAM 2003, LTAM 3001, LTAM 3002, or LTAM 3003 fulfills. With the approval of an advisor, students may also apply up to three credit hours of LTAM 3800 (Independent Study) toward these requirements.

### **Transfer Credit (up to 64 credit hours)**

Up to 64 credit hours may be accepted from a two-year institution. There is no limit on the number of hours that may be accepted from four-year institutions. All students must complete their last 30 credit hours in residence at UNC Charlotte, including the last 12 hours of the major. At the discretion of an advisor, prior life, study, or work experience may be considered in exempting a student from this requirement.

### **Degree Total = 120 Credit Hours**

### **Grade Requirements**

To graduate, students majoring in Latin American Studies must have an overall GPA of at least 2.0,

including a GPA of at least 2.0 in the major.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Honors Program

This optional credential may be awarded to students with a minimum overall GPA of 3.25 and a GPA of at least 3.25 in Latin American Studies courses. To

receive honors in Latin American Studies, a student must be approved by the Latin American Studies Honors Committee as well as the Honors Council. Students who plan to graduate with “Honors in Latin American Studies” must apply for, and be approved for, “Honors Candidacy” during the semester



prior to the semester they plan to graduate. They must register for 3 hours of LTAM 4700 (Honors in Latin American Studies) during their Senior year and present an honors thesis based on in-depth research in primary sources to a committee composed of three members of the Latin American Studies faculty. One of these faculty members will serve as the student's primary honors thesis adviser. Following an oral defense of the thesis, the committee shall award a grade. A thesis awarded a grade of A is acceptable for curricular honors. Students may also obtain honors through the University Honors Program (details available at [uhp.uncc.edu](http://uhp.uncc.edu)).

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## Minor in Latin American Studies

A Minor in Latin American Studies consists of 15 credit hours.

### Program Requirements

#### Introductory Course (3 hours)

LTAM 1100 Introduction to Latin America (3)

#### Economy and Society (6-9 hours)

Courses in this perspective emphasize social science approaches to the study of contemporary Latin America such as anthropology, political science, and business language. Economy and Society courses are designated in the LTAM course catalog by the numbers 21xx, 31xx, 41xx (e.g., LTAM 2116 (Contemporary Latin America), LTAM 3144 (Latin American Politics),

and LTAM 4120 (Advanced Business Spanish)).

#### Historical Context (6-9 hours)

Courses in this perspective focus on the historical development of Latin America since Pre-Columbian times, and they include courses in History and Archaeology. Students must take at least one course on pre-Columbian and/or colonial Latin America. Historical Context courses are designated in the LTAM course catalog by the numbers 22xx, 32xx, and 42xx (e.g., LTAM 2206 (Colonial Latin America) and LTAM 3276 (History of Mexico)). One of these courses must focus on the pre-colonial and/or colonial periods.

#### Literature and the Arts (6-9 hours)

Courses in this perspective study the cultural production of Latin American peoples such as the arts, literature and film, and they include courses in Art History, Spanish, and film studies. Literature and the Arts courses are designated in the LTAM course catalog by the numbers 23xx, 33xx, and 43xx (e.g., LTAM 3360 (Studies in Hispanic Film) and LTAM 4311 (Studies in Spanish American Prose Fiction)).

*Note: Among the 15 hours required for the minor, not more than 6 hours may be double counted with another major or minor. This stipulation includes cross-listed courses, regardless of program designation under which the course was taken. Exceptions may be approved by an advisor upon consultation with the other program or department. Students exercising this option should be aware that the accuracy of the online degree audit may be affected.*

Students may take LTAM 2001, LTAM 2002, or LTAM 2003 (Topics in Latin American Studies); or LTAM 3001, LTAM 3002, or LTAM 3003 (Advanced Topics in Latin American Studies) to help fulfill these requirements. As the topics of these courses vary, students may repeat them for credit. An advisor will determine which perspective(s) a given section of LTAM 2001, LTAM 2002, LTAM 2003, LTAM 3001, LTAM 3002, or LTAM 3003 fulfills. With the approval of an advisor, students may also apply up to three credit hours of LTAM 3800 (Independent Study) toward these requirements.

#### Foreign Language Requirement

Students are expected to demonstrate competency in Portuguese or Spanish by completion of two courses at the 2000-level or above. Additional language training and/or study-abroad is strongly recommended.

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# Department of Mathematics and Statistics

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<http://math.uncc.edu>

Mathematics has important applications to numerous areas ranging from economics and other social sciences to physics and engineering. It is a challenging and interesting area to study in its own right with a broad and varied curriculum. Of course, graduates with a major in mathematics can become teachers and are in very high demand. However, according to a recent national survey, the majority are employed in careers with private for-profit employers. The leading occupations include:

- Accounting and Finance
- Computer Programming
- Sales and Marketing
- Management and Related Positions
- Actuarial
- Computer Systems Analysis
- Statistical and Mathematical Modeling
- Health and Social Services

Career choices for students who concentrate in Statistics would also include those related to the environment, food and drug industry, and the energy sector. Mathematics majors rank the highest in performance on both the LSAT and the GMAT standardized tests for law school and graduate level business programs, respectively.

## Degree Programs

The Department of Mathematics and Statistics offers a B.A. and B.S. in Mathematics (with optional concentrations in Actuarial Mathematics and Statistics); a B.A. and B.S. in Mathematics for Business; three minors: Mathematics, Actuarial Mathematics, and Statistics; teacher licensure; and an Honors program.

For further studies, the department offers graduate programs leading to master's and doctoral degrees. The Ph.D. degree is available in Applied Mathematics. The M.A. degree is available in Mathematics Education. The M.S. degree in Mathematics has concentrations in General Mathematics, Applied Mathematics, and Applied Statistics. Additional information on these programs can be found in the *UNC Charlotte Graduate Catalog*.

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## Bachelor of Arts in Mathematics

A Major in Mathematics for the B.A. degree consists of a minimum of 34 credit hours of approved Mathematics (MATH), Operations Research (OPRS), or Statistics (STAT) courses, one programming course in Computer Science (ITCS), and 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### Additional Admission Requirements

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (26-28 credit hours)

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
MATH 2242 Calculus IV (3)  
MATH 3163 Introduction to Modern Algebra (3) (W)  
MATH 3688 Mathematics Awareness Seminar (0)  
MATH 3689 Mathematics Project Seminar (1) (O)  
or MATH 3791 Senior Honors Tutorial (3)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab I (0)

#### Restricted Elective Courses (12 credit hours)

Select 12 credit hours of approved courses from MATH, STAT, or OPRS at the 3000-level or above.

#### Related Courses (18 credit hours)

Select 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

#### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Mathematics with Concentration in Actuarial Science

An actuary is a business professional who uses mathematical skills to aid in the design and pricing of insurance policies and pension programs. Actuaries are employed by insurance companies, government agencies, health service organizations, large corporations, and consulting firms.

### Additional Admission Requirements

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### Degree Requirements

A Bachelor of Arts degree in Mathematics with a Concentration in Actuarial Science consists of a minimum of 37 hours of mathematics and statistics courses, one programming course in computer science (ITCS), and 18 hours of approved related coursework from the College of Business.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (41 credit hours)

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
MATH 2242 Calculus IV (3)  
MATH 2428 Actuarial Science IA (3)  
MATH 3122 Probability and Statistics I (3)  
MATH 3123 Probability and Statistics II (3)  
MATH 3128 Actuarial Science IB (3)  
MATH 3129 Actuarial Science IIA (3)  
MATH 3163 Introduction to Modern Algebra (3) (W)  
MATH 3688 Mathematics Awareness Seminar (0)  
MATH 3689 Mathematics Project Seminar (1) (O)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab I (0)

### Related Courses (18 credit hours)

ACCT 2121 Principles of Accounting I (3)  
ACCT 2122 Principles of Accounting II (3)

ECON 2101 Principles of Economics - Macro (3)  
ECON 2102 Principles of Economics - Micro (3)  
FINN 3120 Financial Management (3)  
FINN 3271 Principles of Risk Management and Insurance (3)

### Recommended Courses (9 credit hours)

FINN 3272 Life Insurance and Professional Financial Planning (3)  
or FINN 3273 Property and Casualty (3)  
STAT 3110 Applied Regression (3) (W)  
STAT 3150 Time Series Analysis (3)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Mathematics with Concentration in Statistics

### Additional Admission Requirements

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### Degree Requirements

A Bachelor of Arts degree in Mathematics with a Concentration in Statistics consists of a minimum of 34 hours of Mathematics (MATH) and Statistics (STAT) courses, one programming course in Computer Science (ITCS), and 18 hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (38 credit hours)

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2241 Calculus III (3)

MATH 2242 Calculus IV (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 3688 Mathematics Awareness Seminar (0)  
MATH 3689 Mathematics Project Seminar (1) (O)  
STAT 2122 Introduction to Probability and Statistics (3)\*  
STAT 2223 Elements of Statistics II (3)\*  
STAT 3110 Applied Regression (3) (W)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab I (0)

Plus three of the following four Statistics courses:

STAT 3140 Design of Experiments (3)  
STAT 3150 Time Series Analysis (3)  
STAT 3160 Applied Multivariate Analysis (3)  
STAT 4116 Statistical Computing (3)

*\*STAT 2122 and STAT 2223 may be replaced by MATH 3122/STAT 3122 and STAT 3123, or by STAT 3128 and STAT 3123.*

#### **Related Courses (18 credit hours)**

Select 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

#### **Recommended Course (3 credit hours)**

ITCS 3160 Data Design and Implementation (3)

#### **Unrestricted Elective Courses**

As needed.

### **Degree Total = 120 Credit Hours**

#### **Grade Requirements**

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Bachelor of Science in Mathematics**

#### **Additional Admission Requirements**

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### **Degree Requirements**

A Major in Mathematics for the B.S. degree consists of a minimum of 40 credit hours of approved Mathematics (MATH), Operations Research (OPRS), or Statistics (STAT) courses. In addition to the requirements for the B.A. in Mathematics degree, the Major in Mathematics for the B.S. degree requires the completion of six additional hours of approved MATH, OPRS, or STAT courses numbered 3000 or above (exclusive of MATH 3163), and a minimum of 11 hours of science courses.

#### **General Education Courses (37-43 credit hours)**

For details on required courses, refer to the General Education program.

#### **Major Courses (minimum 35 credit hours)**

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
MATH 2242 Calculus IV (3)  
MATH 3141 Advanced Calculus of One Variable (3)  
MATH 3142 Advanced Calculus of Several Variables (3)  
MATH 3163 Introduction to Modern Algebra (3) (W)  
MATH 3688 Mathematics Awareness Seminar (0)  
MATH 3689 Mathematics Project Seminar (1) (O)  
or MATH 3791 Senior Honors Tutorial (3)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab I (0)

And at least one from the following:

MATH 3123 Probability and Statistics II (3)  
or STAT 3123 Probability and Statistics II (3)  
MATH 4163 Modern Algebra (3)  
MATH 4164 Abstract Linear Algebra (3)  
MATH 4181 Introduction to Topology (3)  
MATH 5143 Analysis I (3)

#### **Restricted Elective Courses (6 credit hours)**

Select 6 credit hours of approved courses from MATH, STAT, or OPRS at the 3000-level or above, exclusive of MATH 3163.

#### **Science Courses (11 credit hours)**

Select a minimum of 11 credit hours of approved science courses.

#### **Related Courses (18 credit hours)**

Select 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

#### **Unrestricted Elective Courses**

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).



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## Bachelor of Science in Mathematics with Concentration in Statistics

### Additional Admission Requirements

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### Degree Requirements

A Bachelor of Science degree in Mathematics with a Concentration in Statistics consists of a minimum of 40 hours of Mathematics and Statistics courses, one programming course in Computer Science (ITCS), and 18 hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (44 credit hours)

MATH 1241 Calculus I (3)

MATH 1242 Calculus II (3)

MATH 2241 Calculus III (3)

MATH 2242 Calculus IV (3)

MATH 2164 Matrices and Linear Algebra (3)

MATH 3141 Advanced Calculus of One Variable (3)

MATH 3688 Mathematics Awareness Seminar (0)

MATH 3689 Mathematics Project Seminar (1) (0)

STAT 2122 Introduction to Probability and Statistics (3)\*

STAT 3110 Applied Regression (3) (W)

STAT 3122 Probability and Statistics I (3)

STAT 3123 Probability and Statistics II (3)

ITCS 1212 Introduction to Computer Science (4)

ITCS 1212L Programming Lab I (0)

Plus three of the following four Statistics courses:

STAT 3140 Design of Experiments (3)

STAT 3150 Time Series Analysis (3)

STAT 3160 Applied Multivariate Analysis (3)

STAT 4116 Statistical Computing (3)

### Related Courses (18 credit hours)

Select 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### Recommended Course (3 credit hours)

ITCS 3160 Data Design and Implementation (3)

### Unrestricted Elective Courses

As needed.

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## Degree Total = 120 Credit Hours

### Grade Requirements

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Arts in Mathematics for Business

### Additional Admission Requirements

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories: (1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### Degree Requirements

A Major in Mathematics for Business for the B.A. degree consists of a minimum of 36 hours of approved

Mathematics (MATH), Operations Research (OPRS), or Statistics (STAT) courses, one programming course in Computer Science (ITCS), and 18 hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (31 credit hours)

MATH 1120 Calculus (3)  
MATH 2120 Intermediate Applied Calculus (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2428 Actuarial Science IA (3)  
MATH 4051 Computer Exploration and Generation of Data (3) (0)  
OPRS 3111 Operations Research: Deterministic Models (3)  
STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 2223 Elements of Statistics II (3)  
STAT 3110 Applied Regression (3) (W)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab I (0)

### Restricted Elective Courses (9 credit hours)

Select 9 credit hours of approved courses from MATH, STAT, or OPRS at the 3000-level or above.

### Related Courses (18 credit hours)

Select 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Bachelor of Science in Mathematics for Business

### Additional Admission Requirements

Students applying for either the B.A. or B.S. degree in Mathematics or Mathematics for Business must have a GPA of at least 2.0 in each of the following categories:

(1) all MATH, STAT, and OPRS courses taken and (2) all 2000-level and above MATH, STAT, and OPRS courses taken.

### Degree Requirements

A Major in Mathematics for Business for the B.S. degree consists of a minimum of 45 hours of approved Mathematics (MATH), Operations Research (OPRS), or Statistics (STAT) courses, one programming course in Computer Science (ITCS), and 18 hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (37 credit hours)

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)  
MATH 2428 Actuarial Science IA (3)  
MATH 4051 Computer Exploration and Generation of Data (3) (0)  
OPRS 3111 Operations Research: Deterministic Models (3)  
STAT 2122 Introduction to Probability and Statistics (3)\*  
STAT 2223 Elements of Statistics II (3)\*  
STAT 3110 Applied Regression (3) (W)  
ITCS 1212 Introduction to Computer Science (4)  
ITCS 1212L Programming Lab I (0)

*\*Students may take MATH3122/STAT 3122 and MATH 3123/STAT 3123 in place of STAT 2122 and STAT 2223.*

### Concentration Courses (12 credit hours)

Students majoring in Mathematics for Business must select from one of three concentrations:

#### *Concentration in Economics/Finance*

MATH 4122 Probability and Stochastic Models (3)  
MATH 4128 Risk Theory (3)  
STAT 3150 Time Series Analysis (3)  
One additional MATH, STAT, or OPRS 3000 or 4000-level course

#### *Concentration in Actuarial Science*

MATH 3128 Actuarial Science IB (3)  
MATH 3129 Actuarial Science IIA (3)  
STAT 3150 Time Series Analysis (3)  
One additional MATH, STAT, or OPRS 3000 or 4000-level course

### **Concentration in Operations Research**

OPRS 3113 Operations Research: Probabilistic Models (3)  
OPRS 4113 Game Theory (3)  
OPRS 4114 Dynamic Programming (3)  
One additional MATH, STAT, or OPRS 3000 or 4000-level course

### **Related Courses (18 credit hours)**

Select 18 credit hours of approved related coursework in an area outside of the department or an approved University minor from outside the department.

### **Unrestricted Elective Courses**

As needed.

### **Degree Total = 120 Credit Hours**

### **Grade Requirements**

An overall GPA of at least 2.0 and a GPA of at least 2.0 in all math courses is required.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Teacher Licensure in Mathematics**

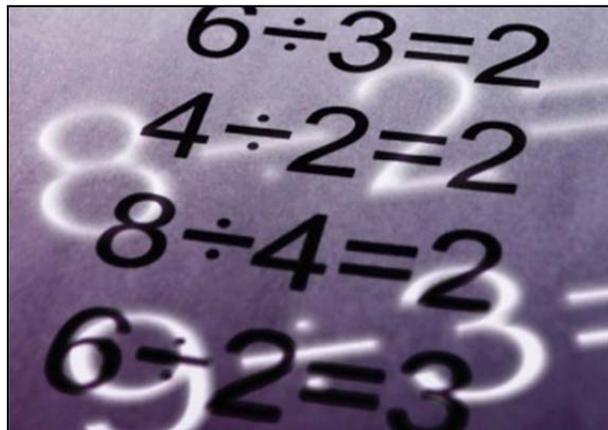
Students preparing for licensure to teach mathematics in secondary school (grades 9-12) must Major in Mathematics. They may select either the B.A. or the B.S. degree track, but their coursework must include:

### **Required Courses**

MATH 3181 Fundamental Concepts of Geometry (3)  
MATH 4109 History of Mathematical Thought (3)  
MAED 4103 Using Technology to Teach Secondary School Mathematics (3)  
MAED 4105 Geometry in the Secondary School Mathematics Curriculum (3)  
MAED 4252 Teaching Mathematics to Secondary School Learners (3)  
STAT course together with a Minor in Secondary Education

Before the end of their Sophomore year, students should complete MDSK 2100 (Foundations of Education and Diverse Youth in Secondary Schools) and obtain an application for formal admission to the teacher education program in the Department of Middle, Secondary, and K-12 Education. Once they are approved for the Teacher Education program, students are enrolled in the Minor in Secondary Education. The minor requires 4 additional courses from the College of Education and one semester of student teaching. Detailed information is available in the Department of Mathematics and Statistics office.

Licensure applications are the responsibility of the student and the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education.



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## **Minor in Mathematics**

A Minor in Mathematics requires 18 credit hours with a minimum GPA of at least 2.0 in all courses.

### **Program Requirements**

#### **Required Courses (9 credit hours)**

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
and/or MATH 2171 Differential Equations (3)

#### **Restricted Elective Course (3 credit hours)**

Select one course from:

MATH 2241 Calculus III (3)  
MATH 2242 Calculus IV (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2171 Differential Equations (3)  
STAT 2122 Introduction to Probability and Statistics (3)  
Or any three-hour MATH, STAT, or OPRS 3000 or above

#### **Unrestricted Elective Courses (6 credit hours)**

Two 3-credit hour MATH, STAT, or OPRS courses numbered 3000 or above.

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## **Minor in Actuarial Mathematics**

An actuary is a business professional who uses mathematical skills to aid in the design and pricing of insurance policies and pension programs. Actuaries are employed by insurance companies, government agencies, health service organizations, large corporations, and consulting firms.

## Program Requirements

A Minor in Actuarial Mathematics requires 21 credit hours with a minimum GPA of at least 2.0 in all courses.

### Required Courses

MATH 1241 Calculus I (3)  
MATH 1242 Calculus II (3)  
MATH 2164 Matrices and Linear Algebra (3)  
MATH 2241 Calculus III (3)  
MATH 2428 Actuarial Science IA (3)  
MATH 3122 Probability and Statistics I (3)  
or STAT 3122 Probability and Statistics I (3)  
MATH 3128 Actuarial Science IB (3)

### Actuarial Examinations

Completion of these courses will help prepare the student for the first two actuarial examinations administered by the Society of Actuaries and the Casualty Actuarial Society. The first actuarial exam should be taken after completing MATH 3122/3123, and the second examination after completing MATH 3128. Further examinations cover material contained in MATH 3129 (Actuarial Science IIA).

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## Minor in Statistics

A Minor in Statistics requires 18 credit hours.

### Program Requirements

#### Required Courses

Select one:

MATH 1120 Calculus (3)  
MATH 1121 Calculus for Engineering Technology (3)  
MATH 1241 Calculus I (3)\*

Select one:

MATH 2120 Intermediate Applied Calculus (3)  
MATH 2241 Calculus III (3)\*

\*Note: MATH 1241 is a prerequisite for MATH 2241.

Select one:

STAT 1220 Elements of Statistics I (BUSN) (3)  
STAT 1221 Elements of Statistics I (3)  
STAT 1222 Introduction to Statistics (3)  
STAT 2122 Introduction to Probability and Statistics (3)

Required:

STAT 2223 Elements of Statistics II (3)

Select one:

STAT 3110 Applied Regression (3) (W)  
STAT 3140 Design of Experiments (3)  
STAT 3150 Time Series Analysis (3)  
STAT 3160 Applied Multivariate Analysis (3)

Additionally, students select one course from the following list in their major:

BINF 2121 Statistics for Bioinformatics (3)  
CJUS 3101 Research Methods in Criminal Justice (4) (W)  
COMM 3100 Communication Research Methods (3) (W)  
ECON 3112 Econometrics (3)  
OPER 3206 Quality Assurance and Management (3)  
POLS 2220 Political Science Methods (4) (W)  
PSYC 3140 Basic Processes in Psychological Assessment (3)  
HLTH 3104 Research and Statistics in Health (3)  
SOWK 3900 Social Work Research I (3)  
SOCY 4156 Quantitative Analysis (4)

If a student's major is not listed above, then they may take a second course from the following:

STAT 3110 Applied Regression (3) (W)  
STAT 3140 Design of Experiments (3)  
STAT 3150 Time Series Analysis (3)  
STAT 3160 Applied Multivariate Analysis (3)

The Minor in Statistics is not available to students majoring in a mathematics program.



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## Honors Program in Mathematics

The purpose of the Honors Program in mathematics is to stimulate the imagination and deepen the understanding of students by encouraging independent study and to provide recognition of exceptional achievements in mathematics. Students who complete the requirements of the program graduate with Honors in mathematics. The honors notation will appear on a student's official transcript.

### Admission

Entrance to the Honors Program is granted by the Department of Mathematics and Statistics, based on the following minimum requirements: (1) Junior or Senior standing; (2) at least 20 hours in mathematics, including MATH 1241, MATH 1242, MATH 2241, MATH 2171, MATH 2164, and MATH 3163; and (3) a

GPA of not less than 3.0 in mathematics courses and in all University courses.

Students must apply to the Department of Mathematics and Statistics for admission to the program and, if admitted, must select a mathematics faculty member who is willing to serve as an Honors advisor. The Department recommends students admitted to the program to the Honors Council for formal admission to Honors candidacy. (In order to graduate with Honors the University requires that students be admitted to Honors candidacy at least two semesters before graduation.)

### **Honors Courses**

A Junior Honors Seminar (MATH 3790) and a Senior Honors Tutorial (MATH 3791) are offered, both of which may be repeated for credit.

### **Certification Requirements**

The requirements for graduation with Honors are: (1) completion of all requirements for a Bachelor of Science degree in Mathematics with a grade point average of 3.00 or above; (2) a grade point average of 3.25 or above in all mathematics, operations research and statistics courses and a GPA of 3.5 or above in all mathematics Honors courses; (3) completion of at least six hours of Senior honors tutorial (MATH 3791) with a GPA of 3.5 or above, culminating in an Honors thesis approved by the Department of Mathematics and Statistics; and (4) recommendation by the Department of Mathematics and Statistics to the Honors Council that the student graduate with Honors.

Either the student or the department may withdraw the student from the Department Honors Program. If the date for dropping courses has passed when the student leaves the program, the student must complete any courses currently in progress in order to receive passing grades in the courses.

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## **Cooperative Education Program**

A student may participate in the Mathematics Cooperative Education Program in either the parallel or alternate track. The parallel track combines part-time academic study and part-time cooperative experience during the same semester, while the alternate track alternates semesters totally devoted to work with semesters totally devoted to academic study. Students in the Mathematics Cooperative Education Program must participate in a minimum of two semesters in the program. Students who are in good standing with the University, have a minimum overall GPA of 2.5, and have completed 30 credit hours are eligible to apply. Transfer students are required to complete 12 credit hours at the University prior to application. Students interested in participating in the program should contact the Coordinator of Undergraduate Programs in

the Department of Mathematics and Statistics or the University Career Center for information.

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# Department of Philosophy

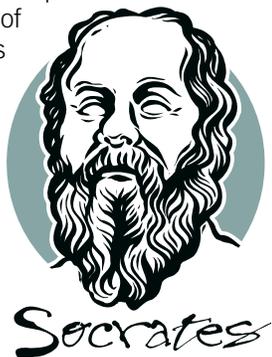
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<http://philosophy.uncc.edu>

Philosophy is reasoned inquiry about the nature of persons, reality, thought, knowledge, values, and beauty. It seeks to establish standards of evidence, to provide rational methods of resolving conflicts, and to create techniques for evaluating fundamental ideas, principles and arguments in all areas of human existence and knowledge. Equally concerned with human endeavor in both the arts and the sciences, philosophy continues to reside at the core of a liberal education.

Students major or minor in philosophy because of their desire to pursue fundamental ideas, principles, and arguments in general or in relation to other disciplines. Philosophy helps students develop strong skills in writing, critical thinking, reading, and understanding complex texts. These skills are indispensable for any committed and concerned citizen. The study of philosophy also provides a deeper understanding and enjoyment of the challenges and issues people face throughout their personal and professional lives.

Students may choose to major solely in philosophy, or to pursue it as a second major or as a minor. As several members of the department teach regularly within interdisciplinary studies, many philosophy courses introduce a wide range of ethical, political, scientific, technological, literary, and aesthetic ideas into discussions of philosophical issues. Courses in critical thinking and logic are a benefit to students in all their coursework and can be especially useful to students who plan to enter graduate school, law school, or other professional school. Given the Department of Philosophy's association with the Center for Professional and Applied Ethics, many philosophy courses give students a deeper understanding of contemporary issues in business, law, medicine, public policy, information technology, and environmental studies.



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## Bachelor of Arts in Philosophy

### Degree Requirements

A Major in Philosophy leading to a B.A. degree consists of a minimum of 33 credit hours in philosophy, at least 18 of which are earned at UNC Charlotte with a grade of C or above, with no more than six hours below the 3000-level counting toward the major. Majors are strongly encouraged (but not required) to take the Senior Seminar, a capstone course, in one of their last three semesters.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foreign Language Courses (3-4 credit hours)

Students majoring in philosophy must complete either a 2000-level course in a foreign language that uses the Latin alphabet (French, German, Italian, Spanish, etc.) or a 1202-level course in a foreign language that is not written in the Latin alphabet (Greek, Hebrew, Japanese, Russian, etc.), or demonstrate proficiency at that level. Intermediate American Sign Language is also accepted. Non-native speakers of English may complete the foreign language requirement by passing UWRT 1101 and UWRT 1102 or the equivalent.

### Foundation Course (3 credit hours)

Select one of the following:

- PHIL 2101 Introduction to Philosophy (3)
- PHIL 2102 Introduction to Philosophy - Writing Intensive (3) (W)

### Major Courses (30 credit hours)

#### Logic Courses (3 credit hours)

- PHIL 2105 Deductive Logic (3)

*Note: PHIL 1105 (Critical Thinking) is not required, but strongly recommended.*

#### History/Genealogy Courses (9 credit hours)

- PHIL 3010 Ancient Philosophy (3)
- PHIL 3020 Modern Philosophy (3)

Plus one of the following:

- PHIL 3030 Twentieth Century Philosophy (3)
- PHIL 3110 Medieval Philosophy (3)
- PHIL 3120 Nineteenth Century Philosophy (3)
- PHIL 3130 American Philosophy (3)
- PHIL 3140 Existentialism (3)
- PHIL 3170 Major Figure (3)
- PHIL 3190 Topics in History/Genealogy (3)
- PHIL 4190 Advanced Topics in History/Genealogy (3)

#### Ethics/Aesthetics Courses (6 credit hours)

- PHIL 3210 Ethical Theory (3)

Plus one of the following:

- PHIL 3220 Aesthetics (3)
- PHIL 3230 Healthcare Ethics (3)
- PHIL 3239 Ethics Bowl Prep (3) (O, W)
- PHIL 3240 Ethics Bowl I (3) (O, W)
- PHIL 3310 IT Ethics (3)
- PHIL 3320 Engineering Ethics (3)
- PHIL 3330 Philosophy and Literature (3)
- PHIL 3340 Business Ethics (3)
- PHIL 3390 Topics in Ethics/Aesthetics (3)
- PHIL 4390 Advanced Topics in Ethics/Aesthetics (3)

#### **Knowledge/Language Courses (6 credit hours)**

- PHIL 3410 Knowledge and Reality (3)

Plus one of the following:

- PHIL 3420 Philosophy of Language (3)
- PHIL 3430 Mind, Cognition, and Behavior (3)
- PHIL 3510 Advanced Logic (3)
- PHIL 3520 Philosophy of Science (3)
- PHIL 3530 Philosophy of Religion (3)
- PHIL 3590 Topics in Knowledge/Language (3)
- PHIL 4590 Advanced Topics in Knowledge/Language (3)

#### **Identity/Society Courses (6 credit hours)**

- PHIL 3810 Social and Political Philosophy (3)

Plus one of the following:

- PHIL 3820 Feminist Philosophy (3)
- PHIL 3830 Philosophy and Race (3)
- PHIL 3910 Philosophy of War and Peace (3)
- PHIL 3920 Philosophy of Technology (3)
- PHIL 3930 Philosophy of Body (3)
- PHIL 3940 Philosophy of Education (3)
- PHIL 3990 Topics in Identity/Society (3)
- PHIL 4990 Advanced Topics in Identity/Society (3)

#### **Unrestricted Elective Courses**

As needed.

### **Degree Total = 120 Credit Hours**

#### **Grade Requirements**

A GPA of 2.5 is required for all philosophy courses applied to the major.

#### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

### **Minor in Philosophy**

A Minor in Philosophy consists of 18 credit hours in philosophy, at least twelve of which are earned at UNC Charlotte with a grade of C or above, with no more than

six hours below the 3000-level counting toward the minor.

### **Program Requirements**

#### **Foundation Course (3 credit hours)**

*Select one of the following:*

- PHIL 2101 Introduction to Philosophy (3)
- PHIL 2102 Introduction to Philosophy - Writing Intensive (3) (W)

#### **Logic Courses (3 credit hours)**

*Select one of the following:*

- PHIL 1105 Critical Thinking (3)
- PHIL 2105 Deductive Logic (3)
- PHIL 3510 Advanced Logic (3)

#### **History/Genealogy Courses (6 credit hours)**

*Select two of the following:*

- PHIL 3010 Ancient Philosophy (3)
- PHIL 3020 Modern Philosophy (3)
- PHIL 3030 Twentieth Century Philosophy (3)
- PHIL 3110 Medieval Philosophy (3)
- PHIL 3120 Nineteenth Century Philosophy (3)
- PHIL 3130 American Philosophy (3)
- PHIL 3140 Existentialism (3)
- PHIL 3170 Major Figure (3)
- PHIL 3190 Topics in History/Genealogy (3)
- PHIL 4190 Advanced Topics in History/Genealogy (3)

#### **Ethics/Aesthetics, Knowledge/Language, or Identity/Society Courses (6 hours)**

*Select two additional courses from among those listed above in the following categories:*

- Ethics/Aesthetics
- Knowledge/Language
- Identity/Society



## **Honors Program in Philosophy**

#### **What is Honors in Philosophy?**

Philosophy majors may pursue Honors in Philosophy either in addition to or instead of University Honors. Honors in Philosophy includes a combination of GPA requirements, coursework, independent study, and a

thesis project. Only students whose projects have been approved by both the department honors committee and the Honors Council may graduate with honors.

### **Why do Honors in Philosophy?**

There are two main benefits: (1) credentials on one's official transcript ("Graduation with Honors"), and (2) the more important benefit of scholarly growth. Honors projects are basically practice for the more intensively researched, extensively written type of work students will need to do in graduate programs in philosophy and other humanities disciplines (such as literature, cultural studies, etc.). They are also excellent opportunities to develop a stellar writing sample for graduate school applications. Moreover, through intensive work with faculty, students will have the opportunity to both receive one-on-one mentorship (which often helps faculty write extra-detailed letters of recommendation).

## **Certification Requirements**

### **Academic Standing**

- A declared Major in Philosophy
- GPA of at least 3.5 in all PHIL courses counted toward the major
- GPA of at least 3.5 for all departmental and University Honors Program courses submitted towards graduation with Honors
- A grade of A in PHIL 3791

### **Coursework**

- One three-hour course chosen by the student from University Honors Program courses (while ideally this course should be in philosophy, it does not have to be)
- PHIL 3791 Honors Thesis Research (3)

### **Committee**

- Students must compose a thesis committee consisting of three UNC Charlotte faculty. At least two of the members must be in the Department of Philosophy; the third may be from a relevant department or program (e.g., WGST if writing on gender, CHHS if writing on bioethics).
- One member of the committee must be affiliated with the Honors College if and only if a student is also submitting the thesis to University Honors.
- Students should select one member of the committee as the thesis director. The director must be a member of the Department of Philosophy.

### **Paperwork**

- Application for Admission To Candidacy Form
  - This form is the first thing students MUST complete and what gets them into the honors system.

- There are two stages to this form; part one is completed when the student begins Honors coursework; part two is completed when the student proposes a thesis project.
- Oral Thesis Defense
- Once PHIL 3791 is completed and the written thesis is submitted to the thesis committee, the student orally defends the thesis before his or her committee, other faculty, and students. See Steps/Procedures for more details on the oral defense.

The honors notation will appear on a student's official transcript.

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# Department of Physics and Optical Science

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<http://physics.uncc.edu>

A Major in Physics can lead to many challenging, exciting, and productive careers. Students majoring in physics enter a variety of technical fields, attend medical school, teach in high school, or attend graduate school. Research physicists work in industry and government, in laboratories and hospitals, and on university campuses. The Department of Physics and Optical Science offers programs leading to the Bachelor of Arts and Bachelor of Science degrees. In addition, the Department offers dual degree programs in Physics and Computer, Electrical, or Mechanical Engineering.



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## Bachelor of Arts in Physics

The Bachelor of Art degree is appropriate for students seeking an in-depth understanding of physics within the context of a broader education. This curriculum allows the greatest freedom in choosing electives offered by other departments, and is ideal for students wishing to pursue double majors, matching physics with another discipline.

### Degree Requirements

A Major in Physics leading to the B.A. degree consists of at least 36 credit hours of physics courses (PHYS) with an average of C or above.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foundation Courses (25 credit hours)

PHYS 1000 New Student Seminar (1)  
PHYS 2101 Physics for Science and Engineering II (3)\*  
PHYS 2101L Physics for Science and Engineering II

Laboratory (1)\*  
PHYS 2102 Physics for Science and Engineering II (3)\*  
PHYS 2102L Physics for Science and Engineering II Laboratory (1)\*  
CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
MATH 1241 Calculus I (3)\*\*  
MATH 1242 Calculus II (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)

### Major Courses (21 credit hours)

PHYS 3101 Topics and Methods of General Physics (3)  
PHYS 3121 Classical Mechanics I (3)  
PHYS 3141 Introduction to Modern Physics (3)  
PHYS 3220 Mathematical Methods in Physics (3)  
PHYS 3282 Advanced Laboratory in Modern Physics (3) (O, W)  
or PHYS 3283 Advanced Laboratory in Classical Physics (3) (W)  
PHYS 4231 Electromagnetic Theory I (3)  
PHYS 4241 Quantum Mechanics I (3)

### Restricted Elective Courses (6 credit hours)

Select 6 additional PHYS credit hours at the 3000- or 4000-level\*\*\*.

*\*Under special circumstances, and with the approval of the Undergraduate Studies Committee, PHYS 1101, PHYS 1101L, PHYS 1102, and PHYS 1102L may be substituted for the PHYS 2101-2102 sequence.*

*\*\*Freshmen should complete MATH 1241 before the beginning of their second year.*

*\*\*\*PHYS 3000, PHYS 3900, PHYS 4000, or PHYS 4800 may be used to fulfill the 36-credit hour PHYS requirement only if approved in advance for this purpose by the Undergraduate Studies Committee.*

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

Major courses must be completed with grades of C or above.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Teacher Licensure

Students interested in teaching physics in high school should take both PHYS 3282 and PHYS 3283. In addition to meeting the requirements for the physics degree, students who plan to become licensed teachers must have a Minor in Secondary Education. These students should contact the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education regarding teacher licensure.

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## Bachelor of Science in Physics

The Bachelor of Science degree is appropriate for students planning to pursue physics as a professional career, either immediately after graduation in a physics-related industry or after graduate study in physics or a related field.

### Degree Requirements

A Major in Physics leading to the B.S. degree consists of at least 51 credit hours of physics courses (PHYS) with an average of C or above.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Foundation Courses (25 credit hours)

PHYS 1000 New Student Seminar (1)  
PHYS 2101 Physics for Science and Engineering II (3)  
PHYS 2101L Physics for Science and Engineering II Laboratory (1)  
PHYS 2102 Physics for Science and Engineering II (3)  
PHYS 2102L Physics for Science and Engineering II Laboratory (1)  
CHEM 1251 General Chemistry I (3)  
CHEM 1251L General Chemistry I Lab (1)  
MATH 1241 Calculus I (3)\*  
MATH 1242 Calculus II (3)  
MATH 2171 Differential Equations (3)  
MATH 2241 Calculus III (3)

*\*Freshmen should complete MATH 1241 before the beginning of their second year.*

### Major Courses (36 credit hours)

PHYS 3101 Topics and Methods of General Physics (3)  
PHYS 3121 Classical Mechanics I (3)  
PHYS 3141 Introduction to Modern Physics (3)  
PHYS 3151 Thermal Physics (3)  
PHYS 3210 Introduction to Computational Physics (3)  
PHYS 3220 Mathematical Methods in Physics (3)  
PHYS 3282 Advanced Laboratory in Modern Physics (3) (O, W)  
PHYS 3283 Advanced Laboratory in Classical Physics (3) (W)

PHYS 4222 Classical Mechanics II (3)  
PHYS 4231 Electromagnetic Theory I (3)  
PHYS 4232 Electromagnetic Theory II (3)  
PHYS 4241 Quantum Mechanics I (3)

### Restricted Elective Courses (6 credit hours)

Select 6 additional PHYS credit hours at the 3000- or 4000-level\*\*.

*\*\*PHYS 3000, PHYS 3900, PHYS 4000, or PHYS 4800 may be used to fulfill the 36-credit hour PHYS requirement only if approved in advance for this purpose by the Undergraduate Studies Committee. Students planning for graduate study in physics are strongly advised to take PHYS 4242 as part of their 3000-4000-level elective hours.*

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

Major courses must be completed with grades of C or above.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Teacher Licensure

In addition to meeting the requirements for the physics degree, students who plan to become licensed teachers must have a Minor in Secondary Education. These students should contact the Office of Teacher Education Advising, Licensure, and Recruitment (TEALR) in the College of Education regarding teacher licensure.

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## Dual Degree Programs with Electrical and Computer Engineering

The Department of Physics and Optical Science offers two dual degree opportunities with the Department of Electrical and Computer Engineering. These dual degrees are designed to broaden and enhance the education of students in engineering degree programs. Students can obtain a B.S. Physics and B.S. Electrical Engineering dual degree or a B.S. Physics and B.S. Computer Engineering dual degree. Students completing the dual degree can complete the "W" in the Physics major requirement by taking 3 credit hours chosen from the following engineering courses: ECGR 2155, ECGR 2156, ECGR 3155, ECGR 3156, ECGR

3253, or ECGR 3254. Students in this dual degree program are not required to fulfill the College of Liberal Arts & Sciences foreign language requirement (see the CLAS General Education section in this *Catalog* for additional information).

### B.S.E.E. and B.S. in Physics

To obtain a dual B.S. degree in Electrical Engineering and Physics, an undergraduate student must complete all requirements for the B.S.E.E. degree as established by the Department of Electrical and Computer Engineering. In addition, the student must complete 12 hours of upper-division physics courses specified by the Department of Physics and Optical Science with an average grade of C or above. To meet the upper-division physics requirements, students must complete the following courses: PHYS 3121 (Classical Mechanics), PHYS 4241 (Quantum Mechanics), and 6 elective hours (at the 3000-4000 level) chosen from a list of approved courses available from the Department of Physics and Optical Science. These 6 hours of Physics elective credit must be taken under PHYS course numbers. A B.S. in Physics under this program will be awarded at the same time as or after the B.S.E.E.; the B.S. in Physics degree will not be awarded in advance of the engineering degree.

### B.S.Cp.E. and B.S. in Physics

To obtain a dual B.S. degree in Computer Engineering and Physics, an undergraduate student must complete all requirements for the B.S.Cp.E. degree as established by the Department of Electrical and



Computer Engineering. In addition, the student must complete 12 hours of upper-division physics courses specified by the Department of Physics and Optical Science with an average grade of C or above. To meet the upper-division physics requirements, students must

complete the following courses: PHYS 3121 (Classical Mechanics), PHYS 3141 (Introduction to Modern Physics), PHYS 4231 (Electricity and Magnetism), PHYS 4241 (Quantum Mechanics). Students must also complete MATH 2241. A B.S. in Physics under this program will be awarded at the same time as or after

the B.S.Cp.E.; the B.S. Physics degree will not be awarded in advance of the engineering degree.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Dual Degree Program with Mechanical Engineering

The Department of Physics and Optical Science offers a dual degree opportunity with the Department of Mechanical Engineering and Engineering Science. The dual degree is designed to broaden and enhance the education of students in the engineering degree program. Students can obtain a B.S. in Physics and B.S. in Mechanical Engineering dual degree. Students completing the dual degree can complete the writing-intensive (W) requirement in the Physics major by one of the following courses: MEGR 3171L, MEGR 3152, or MEGR 3251. Students in this dual degree program are not required to fulfill the College of Liberal Arts & Sciences foreign language requirement (see the CLAS General Education section in this *Catalog* for additional information).

### B.S.M.E. and B.S. in Physics

To obtain a dual B.S. degree in Mechanical Engineering and Physics, an undergraduate student must complete all requirements for the B.S.M.E. degree as established by the Department of Mechanical Engineering. In addition, the student must complete 12 hours of upper-division physics courses specified by the Department of Physics and Optical Science with an average grade of C or above. To meet the upper-division physics requirement, students must complete the following courses: PHYS 3141 (Introduction to Modern Physics), PHYS 4231 (Electromagnetic Theory I), PHYS 4241 (Quantum Mechanics I), and 3 elective hours (at the 3000-4000 level) chosen from a list of approved courses available from the Department of Physics and Optical Science. These 3 hours of Physics elective credit must be taken under a PHYS course number. It is strongly suggested that students take PHYS 3220 (Mathematical Methods in Physics) as the elective course, unless the student is also a Mathematics major or minor. A B.S. in Physics under this program will be awarded at the same time as or after the B.S.M.E.; the B.S. in Physics degree will not be awarded in advance of the engineering degree.

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Physics

A Minor in Physics requires a minimum of 17 credit hours of physics courses with a GPA of C or above.

### Program Requirements

Students may select from two options to complete the Minor in Physics.

#### Option 1

PHYS 2101 Physics for Science and Engineering I (3)

PHYS 2101L Physics for Science and Engineering I  
Lab (1)

PHYS 2102 Physics for Science and Engineering II (3)

PHYS 2102L Physics for Science and Engineering II  
Lab (1)

PHYS 3101 Topics and Methods of General Physics  
(3)

PHYS 3141 Introduction to Modern Physics (3)

PHYS Elective (3)\*

#### Option 2

PHYS 1101 Introductory Physics I (3)

PHYS 1101L Introductory Physics I Laboratory (1)

PHYS 1102 Introductory Physics II (3)

PHYS 1102L Introductory Physics II Laboratory (1)

PHYS 3101 Topics and Methods of General Physics  
(3)

PHYS 3141 Introduction to Modern Physics (3)

PHYS Elective (3)\*

*\*PHYS Elective course must be selected from a list of approved PHYS courses at the 3000- or 4000-level, available in the Department of Physics and Optical Science. PHYS 3000, PHYS 3900, PHYS 4000, or PHYS 4800 may be used to fulfill the 17-credit hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee.*

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## Honors Program in Physics

To obtain a degree with Honors in physics, a student must maintain at least a 3.0 average in all physics courses, complete PHYS 3900H (Senior Project), and successfully present the results of their project to a panel of faculty members. The honors notation will appear on a student's official transcript. Details are available on the Department of Physics and Optical Science website.

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## Cooperative Education Program

In the Cooperative Education Program, students complete their lower-division coursework and, after being formally accepted as a co-op student, alternates periods of academic coursework with periods of full-time paid employment in an area mutually agreed upon by the student, an employer, and the University. Students who are in good standing with the University,

have a minimum overall GPA of 2.5, and have completed 30 credit hours are eligible to apply. Transfer students are required to complete 12 credit hours at the University prior to application. Further information regarding the application procedure for admission into this program can be obtained from the University Career Center.

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# Department of Political Science and Public Administration

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<http://politicalscience.uncc.edu>

Political science is the study of politics: government, law, political behavior, public policy, and political philosophy. The political science curriculum is designed primarily to afford broad and modern training in the study of political institutions and political behavior for students in the liberal arts and majors planning graduate work. It also affords career-oriented or pre-professional training for teaching, law, business, public relations, or work in the mass media, domestic and foreign government service, the military, teaching, and a variety of active roles in politics.



On the graduate level, the Department of Political Science and Public Administration offers the Master of Public Administration, a professional degree for persons seeking training in public administration with specialization in local government and non-profit management. The department is also one of the social science departments that offers an interdisciplinary Ph.D. in Public Policy. (For more information, see the *UNC Charlotte Graduate Catalog*.)

## Careers with Political Science

Political science majors gain analytical skills and communication abilities that are valued in a wide spectrum of potential career areas. An undergraduate degree in political science can lead to interesting careers in local, state, or federal government; law; private businesses; international organizations; the military; nonprofit organizations; political campaigns; journalism; teaching; public office; research and teaching at universities.

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## Bachelor of Arts in Political Science

### Degree Requirements

A Major in Political Science for the B.A. degree requires 30 credit hours of political science courses.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (13 credit hours)

POLS 1110 American Politics (3)\*  
POLS 1130 Comparative Politics (3)\*  
POLS 1150 International Politics (3)  
POLS 2220 Political Science Methods (4)\* or equivalent social science methods course

*\*Students who receive an evaluation of Qualified (3) or above on the Advanced Placement examination in American Politics will receive credit for POLS 1110. Students who receive an evaluation of Qualified (3) or above on the Advanced Placement examination in Comparative Politics will receive credit for POLS 1130.*

### Restricted Elective Courses (17 credit hours)

#### **Political and Legal Philosophy Courses**

Select at least one course in the subfield of Political and Legal Philosophy.

#### **Senior Courses\*\***

Select at least one of the following:

POLS 4110 North Carolina Student Legislature (3)\*\*\*  
POLS 4163 Advanced Model United Nations (3)\*\*\*  
POLS 4600 Senior Seminar (3)  
POLS 4990 Senior Thesis (3)

*\*\*POLS 2220 and one of the Senior courses listed above fulfill the writing intensive courses (W) required for graduation.*

*\*\*\*No more than nine credit hours from POLS 3400, POLS 3800, POLS 4110, and POLS 4163 may be used to fulfill major requirements.*

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Grade Requirements

Students must earn a minimum GPA of 2.0 in all Political Science courses.

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Political Science

The Minor in Political Science requires 18 credit hours of political science with a combined GPA of at least 2.0 for all POLS courses.

### Program Requirements

#### Required Courses (9 credit hours)

POLS 1110 American Politics (3)  
POLS 1130 Comparative Politics (3)  
POLS 1150 International Politics (3)

#### Elective Courses (9 credit hours)

Students select at least three POLS electives (9+ credit hours)\*

*\*Although students may repeat POLS 3400, POLS 3800, POLS 4110, or POLS 4163 for credit, no more than three hours of credit from any one of these courses may be used to fulfill the requirements for the Minor in Political Science.*

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## Honors Program in Political Science

To graduate with Honors in Political Science and have this fact affixed to the student's transcript, a student must:

- a) Comply with all of the requirements for a Major in Political Science
- b) Complete at least two Honors courses in the University Honors Program or in individual departments with a GPA at UNC Charlotte of at least 3.25
- c) Have an overall GPA at UNC Charlotte of at least 3.25
- d) Have a GPA of at least 3.4 in all Political Science courses taken at UNC Charlotte
- e) Complete the Senior Thesis in Political Science (POLS 4990) with a grade of A and licensure of the Department Honors Committee that the thesis deserves a grade of A and is of Honors quality

To be certified as Honors quality, a thesis must contain original research and demonstrate a high degree of scholarship. Students seeking the Honors designation must notify the professor who is directing their thesis no later than the second week of classes that the thesis should be evaluated for Honors requirements. The directing professor will notify the Honors Committee. Students work on their thesis under the same procedures as all other students, but then submit their thesis for evaluation by the Honors Committee. Faculty

members who serve on the Honors Committee do not evaluate Senior theses completed under their supervision. Instead, the Honors Committee asks another faculty member to evaluate the thesis in question along with the other two members of the Committee. If the Committee agrees to confer Honors on the student's thesis, it certifies this to the Department Chair. If the Committee decides that the thesis does not warrant Honors, the student receives whatever grade the faculty member supervising the thesis had assigned.



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# Department of Psychology

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<http://psych.uncc.edu>

Psychology is the study of behavior. Psychologists are interested in discovering new knowledge about human and animal behavior and in applying that knowledge. Some of the questions psychology considers are:

- How do we learn and remember information?
- Why do people develop behavior disorders?
- What are the changes involved in moving from infancy to old age?
- How do other people influence our behavior?
- How is behavior regulated by the brain?
- How do we perceive the physical world?
- How do psychological factors affect physical health?

Psychology is a relatively young and a very dynamic science and profession. Most of what we know has been learned in the past 50 years. Much is left to be discovered by the psychologists of the future. Students considering Psychology as a field of study should have strong mathematical and communication skills, good problem solving ability, as well as an interest in research and other biological and physical sciences.

## Degree Programs

The Department of Psychology offers a Bachelor of Science (B.S.), an undergraduate Minor in Psychology, a Master of Arts (M.A.) degree, an interdisciplinary Ph.D. in Health Psychology, and an interdisciplinary Ph.D. in Organizational Science. The primary objective of the undergraduate programs is to provide a solid background in the fundamentals of psychology as a science. Graduates of the program should be prepared for a variety of careers or for graduate study. Although many careers in psychology require an advanced degree, opportunities for individuals with a bachelor's degree in psychology include serving as a teacher or psychological assistant in social service agencies, mental health centers, child care centers, centers for the mentally challenged or the emotionally disturbed, and juvenile offender facilities.

Students whose interests are more laboratory-oriented might become laboratory technicians or research assistants. Also, psychology majors find their skills useful in various areas of business, such as management, advertising, personnel, public relations, and marketing.

Graduate school is a possibility after the student

completes the B.S. degree. For a psychologist with a master's degree or doctorate, the career opportunities grow (see the *UNC Charlotte Graduate Catalog* for information on the M.A. and Ph.D. programs). In addition, many psychology graduates broaden their skills by attending graduate schools in the areas of business, counseling, criminal justice, education, and law.



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## Bachelor of Science in Psychology

### Degree Requirements

A minimum of 120 total earned credit hours are required for the degree. The Major in Psychology requires 39 hours of coursework in the major, plus completion of a minor or second major, and other requirements as listed below. Psychology coursework in five areas is required: Research Methods/Critical Thinking Skills, Knowledge Base, Application of Psychology, Psychology Elective courses, and a Capstone course. No more than 6 credit hours (two courses) may be double-counted with another major, minor, or General Education requirements. General Psychology Lab may not be counted towards the major.

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program. The Natural Science courses must be selected from a subject outside of Psychology.

### Foreign Language Courses

Demonstrated proficiency in a foreign language at the 1202 level is required.

### Major Courses (30 credit hours)

#### *Research Methods and Critical Thinking Area Courses (12 hours)*

- PSYC 1101 General Psychology (3)
- STAT 1220 Elements of Statistics I (BUSN) (3)
  - or STAT 1221 Elements of Statistics I (3)
  - or STAT 1222 Introduction to Statistics (3)
- PSYC 2101 Research Methodology I (3)
- PSYC 2103 Research Methodology II (3)

### **Knowledge Base Area Courses (12 hours)**

Select one course from each sub-area:

#### *Learning and Cognition*

- PSYC 3111 Psychology of Learning (3)
- PSYC 3115 Sensation and Perception (3)
- PSYC 3116 Human Cognitive Processes (3)
- PSYC 3216 Introduction to Cognitive Science (3)

#### *Sociocultural Approaches*

- PSYC 3114 Motivation (3)
- PSYC 3130 Social Psychology (3)
- PSYC 3135 Psychology of Personality (3)

#### *Biological Basis of Behavior*

- PSYC 3110 Comparative Psychology (3)
- PSYC 3113 Physiological Psychology (3)
- PSYC 3117 Hereditary Behavior (3)
- PSYC 4316 Cognitive Neuroscience (3)

#### *Developmental Changes*

- PSYC 2120 Child Psychology (3)
- PSYC 2121 Adolescent Psychology (3)
- PSYC 2124 Psychology of Adult Development and Aging (3)

### **Application of Psychology Area Courses (6 hours)**

Select two of the following courses; both may be from the same area:

#### *Personal Applications*

- PSYC 2150 Psychology of Adjustment (3)
- PSYC 2160 Introduction to Health Psychology (3)
- PSYC 3151 Abnormal Psychology (3)

#### *Social Applications*

- PSYC 2155 Psychological Approaches to Diversity (3)
- PSYC 3216 Psychology of Women (3)
- PSYC 3155 Community Psychology (3)

#### *Organizational Applications*

- PSYC 2171 Introduction to Industrial/Organizational Psychology (3)
- PSYC 3140 Basic Processes in Psychological Assessment (3)
- PSYC 3172 Psychology of Personnel: Employee Selection and Classification (3)
- PSYC 3174 Organizational Psychology (3)

#### *Experimental Applications*

- PSYC 3405 Practicum in Applied Psychology (1-4)
- PSYC 3806 Undergraduate Research Assistantship (1-4)
- PSYC 3807 Peer Advising (2)
- PSYC 3808 Undergraduate Teaching Assistantship (3)

*Note: No more than 6 hours in each Experimental*

*Applications course may be applied toward the major. Additional hours may be applied to the Elective Courses.*

### **Restricted Elective Courses (6 credit hours)**

Select 6 credit hours from the following:

- PSYC 1000 The Science and Practice of Psychology (3)
  - PSYC 3001 Topics in Psychology (1-3)
  - PSYC 3002 Topics in Psychological Research (3) (W)
  - PSYC 3122 Cognitive and Language Development (3)
  - PSYC 3123 Social and Personality Development (3)
  - PSYC 3125 Older Worker and Retirement (3) (W)
  - PSYC 3126 Psychology of Women (3)
  - PSYC 3131 Forensic Psychology (3)
  - PSYC 3136 Sexual Behavior (3)
  - PSYC 3137 Positive Psychology (3)
  - PSYC 3152 Child Psychopathology (3)
  - PSYC 4690 Honors Thesis I (3)
  - AFRS 3050 Psychology of Black Experience (3)
- Any course in the Knowledge Base or Application of Psychology Areas above

### **Minor or Second Major**

Students pursuing a B.S. in Psychology are expected to be exposed to a depth of knowledge in at least one domain outside of psychology through their completion of a minor or second major. The choice of minor or second major should be considered in terms of the fulfillment of individual educational and vocational aspirations.

### **Capstone Course (3 credit hours)**

Capstone courses serve as a culminating experience for the undergraduate program. Selection of a Capstone course should be made with future career and educational goals in mind. Enrollment in a Capstone course requires the student to have completed 90 or more hours of coursework, have a C or above in PSYC 2103 (Research Methods II), and any additional prerequisites as required by the individual course. A Capstone course may not be taken during the same term as PSYC 2103. Only one Senior Seminar may be taken. Students may select their Capstone from the following list of courses:



- PSYC 4603 History and Systems (3)
- PSYC 4606 Advanced Topics in Psychology (3)
- PSYC 4612 Seminar in Behavior Modification (3)

PSYC 4613 Seminar in Physiological Psychology (3)  
PSYC 4619 Seminar in Experimental Psychology (3)  
PSYC 4625 Seminar in Developmental Psychology (3)  
PSYC 4630 Seminar in Social Psychology (3)  
PSYC 4650 Seminar in Human Adaptation and Behavior (3)  
PSYC 4655 Seminar in Community Psychology (3)  
PSYC 4660 Seminar in Health Psychology (3)  
PSYC 4670 Seminar in Industrial Psychology (3)  
PSYC 4691 Honors Thesis II (3)

### Unrestricted Elective Courses

As needed.

## Degree Total = 120 Credit Hours

### Academic Advising

Students should seek advising from the Psychology Advising for Student Success (PASS) Center about courses most beneficial to their career and educational goals. In addition, the Department of Psychology actively participates in several interdisciplinary areas of study, including Gerontology, Women's and Gender Studies, and Cognitive Science.

### Grade Requirements

A GPA of 2.0 or above must be achieved for the major. A grade of C or above in PSYC 1101, PSYC 2101, PSYC 2103, a statistics course, and the Capstone course within two attempts\* is required to progress in the major. A grade of C or above is required in each of the two General Education science courses.

*\*Each of the following is considered an attempt: Withdrawing from the course after the drop deadline (may be appealed); grade replacement; audits; Pass/No Credit; Incompletes that convert to grades of F; and grades of A, B, C, D, or F.*

### Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

## Honors Program in Psychology

The Honors Program in Psychology involves a two-semester thesis project (PSYC 4690 and PSYC 4691) that is designed to be similar to a master's thesis. During the first semester, the student does a literature search of existing research on his or her topic, and uses that material as the basis for a Research Proposal. There is a formal defense of the proposal before a committee of 3-4 faculty members at the end of the first semester. Following successful completion, the honors notation will appear on a student's official transcript.

## Minor in Psychology

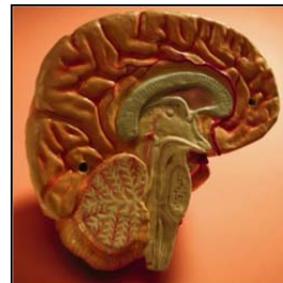
A Minor in Psychology consists of a minimum of 18 credit hours of PSYC courses.

### Program Requirements

#### Required Courses (18 credit hours)

PSYC 1101 General Psychology (3)  
3 Knowledge Base Area Courses selected from three different Knowledge Base Areas\*  
2 Application of Psychology Area Courses selected from different or the same Application of Psychology Areas\*

*\*See lists for above under B.S. in Psychology. A minimum of six hours of coursework at the 3000-level or above is required. No more than three credit hours of PSYC 3806 may be counted toward the minor. PSYC 2101, PSYC 2103, PSYC 3405, PSYC 3807, and PSYC 3808 may not be used for the minor.*



### Grade Requirements

A grade of C or above is required for PSYC 1101 (within two attempts), with a GPA of 2.0 for all psychology courses taken at UNC Charlotte.

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# Department of Religious Studies

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<http://religioustudies.uncc.edu>

Religious studies is the academic inquiry into the fundamental stories, symbols, and practices that human beings have relied on to make sense of themselves and the worlds in which they live. The Department of Religious Studies pursues this inquiry



across a range of religious traditions by examining their textual, historical, and cultural dimensions. This inquiry does not seek to determine which religious views are “right” or “true,” but rather attempts to gain insight into how religious systems of meaning-making have shaped the cultural orders in which we live—with particular attention to how religious

discourses have shaped understandings of race, gender, sexuality, nation, and class. The department is explicitly committed to the liberal arts tradition with a commitment to fostering both an international and pluralistic perspective as well as excellence in close reading, critical thinking, and effective communication.

## Degree Programs

Most students who choose to Major or Minor in Religious Studies do so in order to gain a broad liberal arts education. With the flexibility of the program and its relationship to other areas of the University, students can meet the specific objectives of religious studies while taking a wide range of courses in other departments. Some students relate religious studies to definite vocational plans, often requiring further education in professional and graduate schools.

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## Bachelor of Arts in Religious Studies

### Degree Requirements

A Major in Religious Studies leading to the B.A. degree requires 30 credit hours in RELS courses.\*

### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

### Major Courses (24 credit hours)

#### *Academic Study of Religion Courses (6 credit hours)*

Two courses to orient the student to the academic study of religion.

RELS 2600 Orientation to the Study of Religion (3)

RELS 4600 Senior Seminar (3)

Students are encouraged to take RELS 2600 as early as possible in their program; students typically take RELS 4600 during their final year.

#### *Textual Analysis Courses (6 credit hours)*

Two courses designated as *Textual Analysis [T]\*\** (as signaled in the department’s semester course listings). These courses focus on reading texts closely and carefully, examine methods and histories of textual interpretation, and consider how religious groups and cultures have composed, transmitted, and been shaped by texts.

#### *Historical Analysis Courses (6 credit hours)*

Two courses designated as *Historical Analysis [H]\*\** (as signaled in the department’s semester course listings). These courses focus on a particular historical period or figure; consider a movement, idea, or institution across several historical periods; and examine questions of historiography more generally.

#### *Cultural Analysis Courses (6 credit hours)*

Two courses designated as *Cultural Analysis [C]\*\** (as signaled in the department’s semester course listings). These courses focus on how religious discourses, practices, institutions, and communities interact with, influence, and are influenced by the larger culture of which they are a part.

#### **Restricted Elective Courses (6 credit hours)**

Students should choose two elective courses in consultation with their academic advisor.

*\*At least five (5) courses, including RELS 4600, must be at the 3000-level or above.*

*\*\*Depending on how respective sections are taught, a course could fulfill the requirement for Cultural Analysis [C], Historical Analysis [H], or Textual Analysis [T]. Students **must** consult the course descriptions circulated each semester to determine which designations have been assigned to a particular course.*

### Unrestricted Elective Courses

As needed.

**Degree Total = 120 Credit Hours**

## Suggested Curriculum

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## Minor in Religious Studies

A Minor in Religious Studies consists of a minimum of 15 credit hours, with at least two RELS courses at the 3000-level or above.



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## Honors Program

The Department of Religious Studies offers an Honors Program that allows students to deepen their consideration of approaches to the study of religion and to explore a well-articulated question in a written thesis. To be awarded Honors in Religious Studies, the student must:

- 1) Complete all requirements of the Bachelor of Arts degree
- 2) Complete RELS 4400 (Method and Theory in the Study of Religion) with a grade of B or above
- 3) Write an Honors Thesis of A-grade quality, as judged by their thesis director
- 4) Present their thesis research orally to the faculty as a whole
- 5) Demonstrate, in writing, evidence of a concentration in their course of study, to the satisfaction of the Religious Studies Honors Committee
- 6) Obtain a GPA of 3.25 or above in RELS courses, as well as an overall GPA of 3.0 or above.

Candidates must also formally apply, and be approved, for Honors Candidacy by the Honors Council.

Following successful completion, the honors notation will appear on the student's official transcript.

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# ROTC: Air Force/ Aerospace Studies

<http://afrotc.uncc.edu>

Aerospace Studies prepares students for leadership positions with the United States Air Force through the **Pre-professional Program** and offers courses to all students through the **Academic Program**. The curriculum examines multi-disciplinary issues as they relate to leadership participation in the military environment.



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## Academic Program

The academic program (without affiliation with the formal Air Force ROTC program) is designed for students interested in gaining a perspective on military leadership, management, ethics, and discipline. Students who pursue this concentration should take the upper-level (AERO 31XX and AERO 32XX) courses, and they may attend the lower-level courses. Participation in Leadership Laboratory courses is available by special permission from the Department of Aerospace Studies.

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## Pre-Professional Program / Air Force ROTC Program

The pre-professional track of the Aerospace Studies program is implemented as the Air Force Reserve Officer Training Corps. It provides two programs for students to qualify for a commission as a second lieutenant in the Air Force. To be eligible for the Air Force ROTC pre-professional program, a student must be a citizen of the United States, physically qualified for commission in the Air Force, not under 14 years of age for program entry and, upon graduation, no more than 30 years of age (may be waived to age 35). If

designated for flight training, the student must be able to complete all commissioning requirements prior to age 29 (not waivable).

Cadets must pursue work leading to at least a bachelor's degree and be willing to sign a formal agreement at the beginning of the advanced course or upon initiation of a college scholarship. The agreement, an enlistment into the Air Force Reserve, obligates the student to remain in the ROTC program, accept a commission and serve the required period in the Air Force upon graduation. Cadets must also take an Air Force Officer Qualifying Test (AFOQT) and achieve certain minimum and quantitative scores prior to commissioning.

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## Four-Year Program

This program begins with the General Military Course (GMC) and offers coursework within the lower-division. GMC students not on Air Force ROTC scholarship incur no military obligation. Each candidate for commissioning must pass each GMC course with a

grade of C or above and pass the corequisite lab. Students must score appropriately on an Air Force aptitude test, pass a physical fitness test, pass a medical



examination, and be selected by a board of Air Force officers. If selected, the student then enrolls in the Professional Officer Course (POC), the last two years of the Air Force ROTC curriculum. Students attend a four-week field training course at Maxwell Air Force Base, Alabama normally between the Sophomore and Junior years. All students in the POC receive a tax-free stipend of at least \$450 per month. Upon successful completion of the POC and the requirements for a degree, the student is commissioned in the Air Force as a second lieutenant.

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## Three-Year Program

The basic requirement for entry into the three-year program is that the student has three academic years of college work remaining, either at the undergraduate or graduate level, or a combination of both. Applicants seeking enrollment in the three-year program must take both the Freshman-level and Sophomore-level aerospace studies courses in the Fall and Spring semesters of their Sophomore year. They must also pass Air Force aptitude, physical fitness, and medical examinations and be selected by a board of Air Force officers. Students attend a four-week field training

course at Maxwell Air Force Base in Alabama normally between the Junior and Senior years. All students in the POC receive a tax-free stipend of at least \$450 per month. Upon successful completion of the POC and the requirements for a degree, the student is commissioned in the Air Force as a second lieutenant.



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## Minor in Aerospace Studies

The Minor in Aerospace Studies is open to students pursuing an officer commission in the United States Air Force. A Minor in Aerospace Studies provides expertise in military law, national security issues, airpower history, leadership, teambuilding, as well as written and oral communication skills. Experience gained through this minor would be an advantage to any student interested in future government employment. Requirements include 16 credit hours of Aerospace Studies academic courses, but does not include the associated leadership lab or physical fitness requirements.

### Program Requirements

A minimum of 16 credit hours in departmental courses is required for the Minor in Aerospace Studies, 12 of which must be upper-division.

### Required Courses (16 hours)

- AERO 1101 The Air Force Today I (1)
- AERO 1102 The Air Force Today II (1)
- AERO 2101 The Development of Air Power I (1)
- AERO 2102 The Development of Air Power II (1)
- AERO 3101 Leadership and Management (O) (3)
- AERO 3102 Defense Administration and Military Management (O) (3)
- AERO 3201 National Security Issues in Contemporary American Society (O) (3)
- AERO 3202 The Defense Leader: Perspectives on Ethics and Justice (O) (3)

### Grade Requirements

The cumulative GPA for all courses used toward the

minor must be 2.0 or greater, with no course grade lower than a C.

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## Scholarship Programs

Air Force ROTC awards scholarships at the Freshman through graduate school levels for students in the pre-professional track leading to a commission in the Air Force. They are available to qualified cadets in the three year program and four-year programs. Scholarships are given and retained on a semester basis.

Full-time enrollment in the University or a consortium institution and the Aerospace Studies program is a requirement for scholarship eligibility. Scholarships cover tuition, fees, and a book allowance. Scholarship cadets also receive a tax-free stipend of at least \$300 a month.

Four-year scholarships also are available to high school students. High school students interested should apply online at [www.afrotc.com](http://www.afrotc.com). Initial four-year scholarship packages must be postmarked by December 1 of the year prior to enrollment.



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## Adjunct Programs

### Field Training

Four-week Field Training courses are normally completed during the summer between the Sophomore and Junior years for the four-year program (Junior and Senior years for the three-year program). Transportation, lodging, meals, and approximately \$29 per day are provided by the Air Force during Field Training.

### Leadership Laboratory

Those students pursuing the pre-professional track will participate a minimum of three hours per week during every semester of enrollment. The objective is to provide a laboratory environment where each student receives an opportunity to learn and develop leadership

and management abilities. Cadets plan, organize and carry out the entire leadership laboratory program with only minimal guidance from the staff advisors. Physical fitness training is also a part of the leadership laboratory program.

### Professional Development Program

Students enrolled in the Freshman or Junior year of Air Force ROTC may volunteer to attend a two- or three-week orientation program at an Air Force base. This is an opportunity to observe and experience the working environment of an active Air Force facility and to obtain specific career information. Other programs available to students include glider flight orientation, military airborne jump training, foreign language immersion, cyber operations, space orientation, unarmed combat, and summer engineering projects. Transportation, lodging, meals, and approximately \$29 per day are provided by the Air Force during participation in this voluntary program.

### Flight Training

All cadets seeking a commission who currently do not possess a private pilot's license may participate in an eight-hour flight orientation program any time during enrollment in AFROTC.

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# ROTC: Army/ Military Science

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<http://arotc.uncc.edu>

The Department of Military Science -- also known as the Army ROTC (Reserve Officers' Training Corps) -- is available at UNC Charlotte. Participation in Army ROTC enhances the education of both men and women by providing world class leadership training opportunities applicable in corporate, executive, and government leadership positions, along with practical hands-on expertise in these areas. Students participate in the Basic Course to develop leadership skills, then may be eligible to continue in the Advanced Course in order to pursue a commission as an officer in the United States Army, Army Reserves, or Army National Guard. The Army ROTC program is designed to complement students' major area of study and is compatible with most. Students not interested in Active Duty can be guaranteed a commission in the Army Reserve or National Guard through the Guaranteed Reserve Forces Duty (GRFD) Program and eligible to participate in the Partnership for Youth Success (PaYS) Program. The PaYS Program guarantees an interview with partnering Fortune 500 companies. Participants are also eligible to obtain a Minor in Military Science through the courses taken in the UNC Charlotte Army ROTC program. The Basic Course and the Advanced Course comprise the Military Science curriculum.



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## Basic Course Curriculum

The Basic Course is usually taken during the first and second years, and covers such subjects as basic military techniques, management principles, national defense, military history, and leadership development. Enrollment in the Basic Course can begin in any term in the first and second years, and does not require prior JROTC experience. No military commitment is

incurred for participation in the Basic Course. After completing the Basic Course, students who have demonstrated the potential to become officers and who have met the physical and scholastic standards for commissioning are eligible to enroll in the Advanced Course. Students pursuing a military commission receive Basic Course credit by completing MSCI 1000- and 2000-level courses and leadership labs; attending the Cadet Initial Entry Training (CIET) at Fort Knox, Kentucky, during the summer between a student's Sophomore and Junior years; or by completing Basic Combat Training (BCT).

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## Two-Year Commissioning Program

The Two-Year Commissioning Program is designed for upcoming Juniors who did not take ROTC during the first two years of college and want to pursue a military commission. To enter the two-year program, students must attend a fully-paid, four-week, Cadet Initial Entry Training (CIET) at Fort Knox, Kentucky, during the summer between their Sophomore and Junior years. After successfully completing the CIET, students who meet scholastic requirements may enroll in the Advanced Course. Students who complete Basic Combat Training (BCT) may also be eligible to enroll in the Advanced Course, with approval from the Department Chair.

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## Advanced Course Curriculum

The Advanced Course is taken during a student's last four semesters. It includes instruction in organization and management, principles of training management, tactics, ethics and professionalism, further leadership development, and physical fitness training. During the summer between their Junior and Senior years, Advanced Course students pursuing a military commission will attend a fully-paid, four-week Cadet Leader Course at Fort Knox, Kentucky. This course gives students the chance to put into practice the leadership theories and principles, and military skills learned in the classroom, and introduces them to how the Army functions in a field environment. Advanced Course students must complete MSCI 3000- and 4000-level courses, leadership labs, and one 3-credit hour approved American military history class. The MSCI 3000-level courses must be taken in sequence. Students not pursuing a military commission would receive the same credited class and lab hours but would not participate in the following: physical fitness program, field training exercises, the Cadet Leader Course, or other incentive programs. Completion of the Advanced Course results in a Minor in Military Science.

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## Minor in Military Science

The Minor in Military Science is open to all UNC Charlotte students, regardless if they are willing to

contract with the United States Army. A Minor in Military Science provides expertise in leadership, ethics, professionalism, briefing techniques, national security issues, American history, team-building, and military law, as well as written and oral communication skills. Experience gained through this minor would be an advantage to any student interested in future government employment. Applications to request this minor must be processed by the Department of Military Science.



The minor provides students with an opportunity to study leadership in a contemporary operational environment with a focus on military involvement in political decisions, while also recognizing that the academic study of Military Science is intrinsically linked to political and international relations with focus on particular aspects of leadership. In addition to taking courses in Military Science, students participating in this minor would select a course pertaining to military history-related topics that impact the social, economic, and political environment.

### Program Requirements

A Minor in Military Science consists of a minimum of 19 credit hours, 16 hours at the 3000-level and above within the department and one American military history-related course.

#### Required Core Courses (16 hours)

- MSCI 3101 Adaptive Team Leadership (3)
- MSCI 3101L Adaptive Team Leadership Lab (1)
- MSCI 3102 Applied Team Leadership (3)
- MSCI 3102L Applied Team Leadership Lab (1)
- MSCI 4101 Developing Adaptive Leaders (3)
- MSCI 4101L Developing Adaptive Leaders (1)
- MSCI 4102 Leadership in a Complex World (3)
- MSCI 4102L Leadership in a Complex World Lab (1)

#### Elective American Military History-Related Courses (3 hours)\*

- HIST 2120 American Military History (3)
- HIST 2284 World War II: The European Theatre (3)
- HIST 2285 World War II: The Pacific Theatre (3)
- HIST 3141 World War I (3)
- HIST 3202 American Revolution, 1750-1815 (3)
- HIST 3211 Civil War and Reconstruction, 1860-1877 (3)

*\*Other courses that do not appear on this list may be approved by the department chair if they pertain to military history.*

### Grade Requirements

The cumulative GPA for all courses used toward the minor must be 2.0 or greater, with no individual course grade lower than a C.

### Scholarship Program

On-campus 2-, 2 ½-, 3-, 3 ½-, and 4- year scholarships are available and awarded on a competitive basis, providing either full tuition and mandatory fees or room and board. Scholarships also provide \$600 per semester for books and supplies, and a tax-free tiered stipend of \$300, \$350, \$450, or \$500 per academic month, based on academic year. Four-year scholarships are available online at [www.goarmy.com/rotc](http://www.goarmy.com/rotc) to students who apply while a Junior or Senior in high school. Four-year applicants do not have to be enrolled in high school JROTC to apply and incur no military obligation by applying. The application period starts on June 1 and ends on January 10 of a student's high school senior year. Guaranteed Reserve Forces Duty Scholarships are also available to students that are currently serving in the Army National Guard or Army Reserves and desire no active duty commitment. All scholarships are based on merit, not financial need. Priority goes to STEM (Science, Technology, Engineering, and Mathematics) majors. All scholarship incentives are subject to change due to legislation and funding.



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# Department of Sociology

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<http://sociology.uncc.edu>

The Department of Sociology offers an academic major leading to a Bachelor of Arts degree. On the graduate level, the department offers the M.A. degree in Sociology. For details, see the *UNC Charlotte Graduate Catalog*.

Sociology is the scientific study of human social life. It focuses upon the forces that organize and structure societies and smaller groups, as well as the forces that disorganize and threaten to dissolve them. As a science, sociology applies an objective and systematic method of investigation to identify the patterns and forms of social life and to understand the processes by which they are established and changed.

The study of sociology is attractive to persons seeking a liberal education and immediate employment, as well as to persons preparing for further study and professional careers. As a liberal arts program, it enables students to understand the social contexts in which they find themselves and the social forces that shape personality, actions, and interactions with others. As a pre-professional program it provides an excellent background for persons entering social work, law, teaching, the ministry, journalism, planning, public relations and personnel services. It also provides analytical skills related to market research and program evaluation in human services, sales, management and other business activities.



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## Bachelor of Arts in Sociology

A Major in Sociology leading to the B.A. degree consists of a minimum of 32 credit hours of sociology courses.

### Degree Requirements

#### General Education Courses (37-43 credit hours)

For details on required courses, refer to the General Education program.

#### Major Courses (14 credit hours)

SOCY 1101 Introduction to Sociology (3)

SOCY 4155 Sociological Research Methods (4)

SOCY 4156 Quantitative Analysis (4)

*Plus select one of the following:*

SOCY 3153 Sociological Theory (3)

SOCY 3154 Sociological Theory Writing Intensive (3)

SOCY 4153 Contemporary Sociological Theory (3)

SOCY 4154 Contemporary Sociological Theory -  
Writing Intensive (3)

#### Restricted Elective Courses (minimum 23 credit hours)

Select at least 23 credit hours of SOCY courses at the 3000-level or above.

*Note: At least three credit hours designated (W) must be in the major.*

#### Related Courses (minimum 18 credit hours)

A minimum of 18 credit hours of related coursework or a minor must be completed.

#### Concentration Courses (12 credit hours)

Students can, if desired, complete a concentration in one of three substantive areas as part of the B.A. degree. The three areas are: Sociological Social Psychology; Social Problems and Policy; and Organizations, Occupations, and Work. Each concentration will require a total of four (4) courses, in which one is a required course for the specific concentration and the other three courses are selected from an approved list of electives for the specific concentration. A grade of C or above must be earned in the required course and a GPA of 2.5 must be earned in the concentration. These courses will not add to the total number of hours required for the major, but will count toward the elective hours already required for the major.

#### *Sociological Social Psychology Concentration*

SOCY 2161 Sociological Social Psychology (3)

*Plus select 3 of the following:*

SOCY 2112 Popular Culture (3)

SOCY 3261 Human Sexuality (3)

SOCY 3267 Sociology of Dying, Death, and Bereavement (3)  
SOCY 4150 Older Individual and Society (3)  
SOCY 4263 Sociology of Small Groups (3) (O, W)  
SOCY 4265 Sociology of Law (3) (W)  
Other SOCY courses with advisor approval

### ***Social Problems and Policy Concentration***

SOCY 2171 Social Problems (3)

*Plus select 3 of the following:*

SOCY 2100 Aging and the Lifecourse (3) (SL)  
SOCY 3143 Social Movements (3)  
SOCY 3173 Criminology (3)  
SOCY 3250 Political Sociology (3)  
or SOCY 3251 Political Sociology (3) (O)  
SOCY 4111 Social Inequality (3)  
SOCY 4125 Urban Sociology (3)  
SOCY 4130 Sociology of Health and Illness (3)  
SOCY 4168 Sociology of Mental Health and Illness (3) (W)  
SOCY 4172 Sociology of Deviant Behavior (3)  
or SOCY 4173 Sociology of Deviant Behavior - Writing Intensive (3) (W)  
SOCY 4480 Internship in Sociology (3-6)  
Other SOCY courses with advisor approval

### ***Organizations, Occupations, and Work Concentration***

SOCY 2115 Introduction to Organizations (3)

*Plus select 3 of the following:*

SOCY 4111 Social Inequality (3)  
SOCY 4112 Sociology of Work (3)  
SOCY 4115 Organizational Sociology (3)  
Other SOCY courses with advisor approval

### **Unrestricted Elective Courses**

As needed.

**Degree Total = 120 Credit Hours**

### **Grade Requirements**

All Major Courses above must be completed with a grade of C or above. Majors are allowed a maximum of three attempts, which include any grade of D, F, or W, of any of the courses to fulfill their major requirements.

### **Suggested Curriculum**

For a suggested curriculum progression toward completing the major, please see the Academic Plan of Study available online at [academics.uncc.edu](http://academics.uncc.edu).

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## **Minor in Sociology**

The Minor in Sociology requires the completion of 18 credit hours in sociology.

### **Program Requirements**

#### **Required Course**

SOCY 1101 Introduction to Sociology (3)

#### **Elective Courses**

Two SOCY 2000-level courses

At least three SOCY 3000/4000-level courses

The Department of Sociology will accept no more than six credit hours of courses counted toward another major or minor to also fulfill requirements for the Minor in Sociology.

#### **Grade Requirements**

All courses above must be passed with a grade of C or above. Students are allowed a maximum of three attempts, which include any grade of D, F, or W of any of the courses taken to fulfill their minor requirements.

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## **Honors Program in Sociology**

Admission to the Honors Program may be initiated by the student or by any faculty member of the Department of Sociology on behalf of the student. Minimum eligibility criteria include:

- An overall GPA of 3.2 or above; this standard must be maintained throughout the period of participation in the Honors Program
- A GPA of 3.5 or above in all Sociology courses; this standard must be maintained throughout the period of participation in the Honors Program
- Completion of at least 30, but not more than 90, credit hours at the time participation in the Honors Program begins (determined by the start date of the student's first Honors Program regularly scheduled course or independent study)
- Completion and submission of the Honors Program application form to the Department Chair for distribution to members of the Department of Honors Committee

Successful Honors Program candidates will complete at least nine credit hours of Honors courses in Sociology (which count toward the 120 hours required for graduation). Specific requirements are:

- Complete at least two Honors courses (six credit hours) offered through the University Honors Program (not including the thesis) and earn a GPA of 3.5 or above for the courses
  - Students with a concentration in Sociology must take one Honors course in their concentration (SOC 3791, SOCY 3792,

SOCY 3793, etc. that may be cross-listed with existing courses in the concentrations)

- Complete a 3-credit Honors Thesis (SOCY 3799) based on a proposal approved by the student's Honors Committee; the thesis must meet the following criteria:
  - An original research project examining a sociological issue
  - Include both secondary and primary research
  - Follow traditional scholarly research structure with chapters appropriate to the research method and context
  - At least 25 and not more than 75 pages; double-spaced, 12-point font, 1-inch margins
  - Compliant with an appropriate scholarly writing style
  - Orally defended
  - In accordance with the policies of the University Honors Program, A is the required grade for the Honors Thesis Research Course
- Students may take an additional 3 credit hours of Preliminary Honors Research (SOCY 3798) on a pass/no credit basis to conduct preliminary research and writing
  - If students choose to do this, they must submit a comprehensive report of their progress in the preliminary research and must take SOCY 3799 the following semester to complete and defend their thesis

Following successful completion, the honors notation will appear on a student's official transcript.

For further information, interested students should consult with the Department Chair or Undergraduate Coordinator.

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## Early Entry: Master of Arts in Sociology

The Early Entry Program for the M.A. in Sociology leads to completion of all requirements for the B.A. and M.A. degrees in only five academic years and one or two summers. In this program, students complete requirements for the B.A. degree and begin graduate coursework and research for the M.A. degree in their Senior, or fourth, year.

### Criteria for Acceptance

- 1) Students must have completed at least 75 undergraduate hours
- 2) Students must have at least a 3.2 GPA overall, and a 3.5 GPA in SOCY courses

- 3) The student must take the GRE exam and earn scores that are acceptable for graduate admission

### Graduate Program

Students who meet the above requirements will be accepted into the Graduate Program, conditional upon their successful completion of the requirements for their undergraduate degree, 18 hours in social science, and the required core undergraduate courses (Evolution of Social Thought, Research Methods, and Statistics).

Students will be allowed to take only 15 hours of graduate credit before they have completed their baccalaureate degree. They must maintain an undergraduate GPA of at least 2.7 in order to remain in the program. Students' undergraduate GPA must be at least 3.0 when they graduate.

Students may count only six hours for both undergraduate and graduate degrees. Neither the Pro-seminar in Applied Social Research nor electives may be counted toward both the B.A. and the M.A.

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# Urban Studies

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<http://geoearth.uncc.edu/undergraduate-programs/geography/urban-studies-minor>

Urban Studies is an interdisciplinary program that prepares students to better understand and be able to effectively address, as both professionals and citizens, the many challenges presented by the rapid pace of urban change in the 21st century.

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## Minor in Urban Studies

The Minor in Urban Studies provides an excellent foundation for students interested in pursuing careers such as architecture, land-use or community planning, law, public policy and administration, education, law enforcement, community organizing, transportation, housing and commercial development, real estate, political service, social work, journalism and research.

Coursework in urban history, sociology, and anthropology introduces students to theory development and evaluation and builds skills of critical thinking and analysis. Coursework in architecture, politics, and geography additionally emphasizes the ways in which urban practitioners identify and work to solve urban problems and challenges.

### Program Requirements

A Minor in Urban Studies requires completion of 18 credit hours.

### Elective Courses

- ANTH 2125 Urban Anthropology
- GEOG 2165 Patterns of World Urbanization (3)
- GEOG 3100 The City and Its Region (3)
- GEOG 3205 Internal Structure of the City (3)
- HIST 3280 Blacks in Urban America (3)
- HIST 3281 American Cities (3)
- POLS 3121 Urban Politics and Policy  
or GEOG 3110 Urban Political Geography (3)
- SOCY 4125 Urban Sociology (3)
- URBS 2200 Introduction to Urban Studies (3)\*  
or GEOG 2200 Introduction to Urban Studies (3)\*
- URBS 3050 Topics in Urban Studies (3)

*\*May count toward LBST 2101 credit.*

With prior permission from the Urban Studies Director, students may also select from:

- URBS 3801 Independent Study in Urban Studies (3)
- URBS 4401 Internship in Urban Studies (3)

Students may also count up to 9 hours of other courses that have a significant urban focus with the prior

permission of the Director of the Minor in Urban Studies in the Department of Geography and Earth Sciences.

Of their total 18 hours, students are expected to take no more than 6 hours of coursework in any one disciplinary area.



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# Women's and Gender Studies

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<http://womensandgenderstudies.uncc.edu>

The Women's and Gender Studies interdisciplinary program offers undergraduate and graduate students opportunities to learn about issues relating to gender, women, and feminism. Students may choose to take individual courses, a cluster of related courses, or a full Minor in Women's and Gender Studies. The Women's and Gender Studies Program is committed to fostering personal growth by challenging gender stereotypes of women and men and equipping individuals with the knowledge and skills necessary to empower women and improve gender relations in an ever changing society. Most students find Women's and Gender Studies courses personally interesting, as well as helpful preparation for careers in health and human services, education, law, human resources, art, and business.



## Minor in Women's and Gender Studies

The Minor in Women's and Gender Studies is open to all students regardless of gender and requires completion of at least 18 hours in approved courses. A maximum of nine hours may be earned from any one department or program outside of Women's and Gender Studies. Students minoring in Women's and Gender Studies must complete the following requirements:

### Program Requirements

#### Required Courses (6 hours)

WGST 1101 Introduction to Women's Studies (3)  
WGST 3220 Feminist Thought (3) (W)  
or WGST 3221 Feminist Thought (3)

Students must receive a grade of C or above in WGST 1101 and WGST 3220 or WGST 3221 for these courses to count toward the minor requirements.

#### Elective Courses (12 hours)

Any WGST 4XXX course  
Nine hours of related elective courses

Elective courses can be chosen from any department's or program's offerings, as long as (a) the course deals substantially with gender, women, feminism, sexuality, or related social movements and (b) the courses are approved by the Director of Women's and Gender Studies. Students minoring in Women's and Gender Studies should check their choices of electives with the Director of Women's and Gender Studies, both when they are planning their minor and when they are reviewing it in preparation for graduation.

Examples of courses in other departments that count as Women's and Gender Studies electives include, *but are not limited to*:

AFRS 2215 Black Families in the United States (3)  
AFRS 3158 Gender in African American Literature (3)  
or ENGL 3158 Gender in African American Literature (3)  
ANTH 2090 Gender in a Transforming Africa (3)  
or AFRS 3050 Gender in a Transforming Africa (3)  
ANTH 2090 Gender, Culture, and Communication (3)  
ANTH 2123 Women in Cross-Cultural Perspective (3)  
ANTH 4131 Culture, Pregnancy, and Birth (3)  
ARTH 3394 Women in Art (3)  
CJUS 4000 Gender, Race, and Justice (3)  
CJUS 4162 Seminar on Sexual Assault (3)  
COMM 2110 Women and the Media (3)  
COMM 3110 Gender and Communication (3)  
ENGL 4002 Women and Literature (3)  
ENGL 4050 Gender and Shakespeare (3)  
ENGL 4050 Native American Women (3)

GRNT 4260 Women: Middle Age and Beyond (3)  
HIST 2150 U.S. Women's History to 1877 (3)  
HIST 2151 U.S. Women's History Since 1877 (3)  
HIST 2152 European Women's History (3)  
HIST 2155 Southern Women's History (3)  
or AMST 3050 Southern Women's History (3)  
HIST 3131 History of Sexuality (3)  
NURS 4191 Women's Health Issues (3)  
PHIL 3820 Feminist Philosophy (3)  
PSYC 2126 Introduction to the Psychology of Women and Gender (3)  
RELS 3000 Religion and Gender (3)  
RELS 3111 Women in Judaism (3)  
SOCY 2132 Sociology of Marriage and the Family (3)  
SOCY 2163 Sociology of Gender (3)  
SOCY 3261 Human Sexuality (3)  
SOCY 4090 New Theoretical Approaches to Gender (3)  
SOCY 4165 Sociology of Women (3)  
SPAN 3019 Hispanic Women Writers in English Translation (3)  
THEA 4001 Violent Film Females (3)  
THEA 4001 Women's Writings Onscreen (3)

A complete list of courses approved for the Minor in Women's and Gender Studies is available in the Women's and Gender Studies Program Office.



### Graduate Courses

The Women's and Gender Studies Program regularly offers advanced graduate-level courses and a Graduate Certificate in Gender, Sexuality, and Women's Studies for students wishing to include the study of women, gender, or feminism in their graduate work. These courses (and the graduate certificate they form the core of), enable graduate students to pursue their own research while they develop a substantial background in the field. Please see the *UNC Charlotte Graduate Catalog* for details.

# University *College*



# University College

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<http://ucol.uncc.edu>

## General Education Program

University College serves all undergraduate students at UNC Charlotte through the General Education Program which it coordinates on behalf of and with the support of all of the academic colleges that make up the campus community. This curriculum reflects this university's commitment to the principles of a liberal arts education, a broad training that develops analytic, problem solving, and communications skills and also awareness of bodies of knowledge and new perspectives that prepare students for success in their careers and communities in the 21st century.



University College serves as the academic home for all undergraduate students who are exploring their options before choosing a major. Before students declare a major they are advised in the University Advising Center. The professional advisors in the center are specially trained to work with students to assess their interest and likelihood of success in possible majors. University Advising Center staff are also able to refer students to a variety of support offices available to assist students.

See the “Degree Requirements and Academic Policies” section of this Catalog for details on the General Education Program at UNC Charlotte.

## Prospect for Success

University College coordinates the University's Prospect for Success program. Prospect for Success is a campus-wide academic engagement initiative for all incoming freshmen. The Prospect course that all new students take addresses three learning outcomes: commitment to success, inquiry, and cultural awareness. Prospect also provides structured activities that engage students with their advisors, campus resources, and co-curricular opportunities. Students in University College can choose from three Prospect options:



### Learning Communities

Learning Communities bring new students together with courses and extracurricular activities that are focused around a common theme or topic. Most Learning Communities require a full year commitment. University College students can choose between several Learning Communities. These include the joint University College/College of Liberal Arts & Sciences (UCLAS), Global Village, Gender Excellence, Leadership, UTOP, and BEST Learning Communities. For more information, visit the Learning Communities website at [lc.uncc.edu](http://lc.uncc.edu).

### Freshman Seminars

Freshman Seminar courses (UCOL courses at the 1000-level) have been offered for more than 10 years. These courses are taught by a diverse group of faculty, professional advisors, and Student Affairs professionals. Their primary intent is to assist new students in making a successful transition to college by providing information and tools to help students gain awareness of campus resources, by encouraging students to make connections to the University community, and by developing strategies for academic and personal growth. Individual sections may take a particular thematic focus while others are more general in their approach. A small program of Transfer Seminars (UCOL 1011) is also available, providing similar support for new transfer students.

### Prospect General Education Courses

These are regular general education courses, typically courses in the LBST curriculum, that have been adapted to cover the Prospect learning outcomes. They include break-out sessions to provide small-group interaction, and intentional coordination with advising offices.

## **Common Reading Experience**

The Common Reading Experience at UNC Charlotte is designed to provide a shared academic experience which serves to assist all First-Year students in their transition to UNC Charlotte. This program offers unique opportunities for self-reflection, critical thinking, student interaction, and understanding of diverse perspectives. For details, visit the Common Reading Experience webpage at [ucol.uncc.edu/CRE](http://ucol.uncc.edu/CRE).

# Honors *College*



# Honors College

<http://honorscollege.uncc.edu>

The Honors College offers academically talented and highly motivated students opportunities for intellectual breadth, undergraduate research, service learning, and a community feeling within the context of a large public research university. Comprised of several distinct honors programs, each with its own standards for admission and requirements for graduation, the Honors College is a campus hub for undergraduate honors courses, enrichment opportunities, Crown Scholars, merit scholarships, study abroad, community service, faculty lectures, and University-wide advising for pre-health professions and prestigious award nominations. An honors residence option is also available for all students in the Honors College.

## The University Honors Program in the Honors College

The University Honors Program (UHP) in the Honors College offers a unique undergraduate experience. UHP is designed to offer a balance of academic coursework, community engagement, and leadership experiences. Undergraduates and entering First-Year students in all majors who have a record of academic success and motivation to succeed may apply to UHP. The UHP curriculum emphasizes reflective practices through its courses, enrichment experiences, and service projects which culminate in the Honors senior project, a comprehensive capstone portfolio. The University Honors Program encourages its students to participate in Education Abroad programs, research symposia and conferences, and research opportunities. All students in UHP are also part of the UHP Student Association where students enjoy social events and service projects. UHP students graduate with University Honors Program distinction noted on their official transcripts.



### Requirements

To graduate with University Honors Program Distinction, students must satisfy the following requirements:

- 1) HONR 1700 (Freshman Honors Colloquium) with a passing grade (if entering the program as a First-Year student in the Fall semester)
- 2) LBST 2215 (Citizenship) in the Sophomore year or higher (Honors sections only)
- 3) 15 hours of HONR courses and/or Honors sections of LBST courses
- 4) Complete the Application to Candidacy process for graduating with Honors, as directed by the Honors College
- 5) HONR 3791 (Honors Senior Project), or an approved discipline-based honors thesis/project, with a grade of A
- 6) Maintain a minimum overall GPA of 3.0, and a 3.2 GPA in honors coursework
- 7) Maintain “good standing” status through participation in the UHP Student Association

Students may graduate with dual honors by completing all departmental/college honors requirements, in addition to UHP requirements. In this case, the departmental thesis will satisfy the UHP project requirement.

Students in dual honors programs may count one 3000-level honors course toward their 15 hours of honors electives.

Students studying abroad may request equivalency credits for honors coursework from the Director of the University Honors Program.

## Residence

University Honors Program students are encouraged to live in the Honors College Residence, located on the third floor of Witherspoon Hall, which provides an environment especially conducive to study and cooperative learning.

## Student Association

Students in the University Honors Program are also part of the University Honors Program Student Association. The student-led organization organizes social events, special discussions, student mentoring, and community service projects. All UHP students are required to attend meetings and participate in two community service projects each semester in order to remain in good standing.

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## Honors Programs in Academic Departments and Colleges

Many academic departments and colleges have honors programs enabling students to graduate with honors distinction in their academic discipline or college. This recognition will appear on students' official academic transcripts.

Honors programs in colleges include:

- College of Arts + Architecture
- Belk College of Business
- College of Computing and Informatics
- College of Education

Honors programs in academic departments and programs include:

- Anthropology
- Art and Art History
- Biology
- Chemistry
- Communication Studies
- Criminal Justice and Criminology
- Geography and Earth Sciences
- History
- Kinesiology
- Languages and Culture Studies
- Latin American Studies
- Mathematics and Statistics
- Philosophy
- Physics and Optical Science
- Political Science and Public Administration
- Psychology
- Religious Studies
- Sociology

Information on how to apply and graduate with honors from a college or a specific academic discipline can be found in this *Catalog* under each academic discipline with an honors program.

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## Pre-Health Professions and Pre-Medical School Advising

The Honors College maintains a proactive pre-health advising office to serve all undergraduates seeking careers in a variety of health care professions, including, but not limited to: medicine, physical therapy, pharmacy, veterinary medicine, optometry, dentistry, occupational therapy, podiatry, and physician assistant. For details, please see the *Preparation for Professional Schools* heading in the Student Life, Resources, and Services section of this *Catalog*.

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## Scholarships for Advanced Undergraduate and Graduate Study

The Honors College, working with the Office of International Programs and the Levine Scholars Program, supports applications and nominations for many national and international scholarships for advanced undergraduate and graduate study. These scholarships, from a number of foundations and national organizations including Rhodes, Marshall, James Madison, Barry M. Goldwater, Jack Kent Cooke, Phi Kappa Phi, and National Science Foundation, require extensive application procedures and are awarded only to the most outstanding applicants. Students with exemplary academic records—combined with service and leadership—may be nominated for these highly selective graduate and, in some cases, advanced undergraduate awards. Most also require an on-campus review and institutional endorsement of completed applications.

The Honors College also coordinates UNC Charlotte Alumni Association Scholarships, which preference students in honors programs, as well as four scholarships for honors students: Avenir Scholarship, Narron Scholarship, Narron Travel Award, and Al Maisto Honors College Endowed Scholarship.

# Course *Descriptions*



# Course Descriptions

## Course Descriptions

Course descriptions provide the following information:

- Subject prefix
- Course number
- Course title
- Credit hours assigned to the course
- UNC Charlotte General Education requirements that the course satisfies, if any (**O** = Oral Communication; **W** = Writing Intensive), or whether it is a Service Learning (**SL**) course
- Prerequisites and/or corequisites (if any)
- Any course with which the course may be cross-listed
- Brief description of the course content\*
- If a course is graded as *Pass/No Credit* rather than with a letter grade
- Any restrictions on the number of times a course may be repeated

*\*The description may specify the number of class (lecture) and/or laboratory sessions and hours. If no class hours are given, the number of class hours per week is the same as the number of semester hours credit assigned to the course.*

An example and explanation of a typical course description:

**SUBJ 1234. Title of Course. (Credit Hours) (General Education Requirements Met or Service Learning Course Designation) Prerequisites/corequisites. Brief description of course content.**

## Course Prefix

Courses offered for academic credit are listed by number within each subject and the **subjects are listed alphabetically according to prefixes** which are assigned as listed in the following columns.

PREFIX	SUBJECT
AAHP	Arts + Architecture Honors Program
ACCT	Accounting
AERO	Aerospace Studies
AFRS	Africana Studies
AMST	American Studies
ANTH	Anthropology
ARBC	Arabic
ARCH	Architecture
ARSC	Arts and Sciences
ARTA	Art: Academic and Departmental
ARTB	Art: Basic Foundation Studios
ARTC	Art: Ceramics
ARTD	Art: Drawing
ARTE	Art: Education
ARTF	Art: Fibers
ARTG	Art: Graphic Design
ARTH	Art: History
ARTL	Art: Illustration

PREFIX	SUBJECT
ARTM	Art: Digital Media
ARTP	Art: Painting
ARTR	Art: Print Media
ARTT	Art: Photography
ARTZ	Art: Sculpture
BINF	Bioinformatics and Genomics
BIOL	Biology
BLAW	Business Law
BUSA	Business Administration
BUSN	Business
CEGR	Civil and Environmental Engineering
CHEM	Chemistry
CHFD	Child and Family Development
CHNS	Chinese
CJUS	Criminal Justice and Criminology
CMET	Construction Management
COMM	Communication Studies
CUYC	Urban Youth and Communities

PREFIX	SUBJECT
DANC	Dance
ECGR	Electrical and Computer Engineering
ECON	Economics
EDUC	Education
EIST	Education Instructional Systems Tech
ELED	Elementary Education
ELET	Electrical Engineering Technology
ENER	Energy & Electromechanical Systems
ENGL	English
ENGR	Engineering
ENTR	Business Entrepreneurship
ESCI	Earth Sciences
ETCE	Civil/Environmental Engineering Tech
ETEE	Electrical Engineering Technology
ETFS	Fire Safety Engineering Technology
ETGR	Engineering Technology
ETIN	Industrial Engineering Technology
ETME	Mechanical Engineering Technology
ETMF	Manufacturing Engineering Technology
FARS	Farsi
FILM	Film Studies
FINN	Finance
FLED	Foreign Language Education
FREN	French
GEOG	Geography
GEOL	Geology
GERM	German
GREK	Greek
GRNT	Gerontology
HAHS	Health and Human Services
HGHR	Holocaust, Genocide, & Human Rights
HIST	History
HLTH	Public Health Sciences
HONR	Honors College
HTAS	Humanities, Technology, & Science
IBUS	International Business
INFO	Business Info Systems/Operations Mgmt
INTL	International Studies
ITCS	Computer Science
ITIS	Software and Information Systems
ITLN	Italian
JAPN	Japanese
JOUR	Journalism
KNES	Kinesiology
LACS	Languages and Culture Studies
LATN	Latin

PREFIX	SUBJECT
LBST	Liberal Studies/General Education
LTAM	Latin American Studies
MAED	Mathematics Education
MATH	Mathematics
MDLG	Middle Grades Education
MDGK	Modern Greek
MDSK	Middle, Secondary, and K-12 Education
MEGR	Mechanical Engineering
METR	Meteorology
MGMT	Management
MKTG	Marketing
MSCI	Military Science
MUED	Music Education
MUPF	Music Performance
MUSC	Music
NDSS	Neurodiagnostics and Sleep Science
NURN	Nursing: RN-to-BSN
NURS	Nursing
OPER	Operations Management
OPRS	Operations Research
PHIL	Philosophy
PHYS	Physics
POLS	Political Science
PORT	Portuguese
PSYC	Psychology
READ	Reading, Language, and Literacy
RELS	Religious Studies
RESP	Respiratory Therapy
RUSS	Russian
SECD	Secondary Education
SEGR	Systems Engineering
SOCY	Sociology
SOWK	Social Work
SPAN	Spanish
SPED	Special Education
SPEL	Special and Elementary Education
STAT	Statistics
SWAH	Swahili
TESL	Teaching English as Second Language
THEA	Theatre
TRAN	Translating
UCOL	University College/General Education
URBS	Urban Studies
UWRT	University Writing Program
WGST	Women's and Gender Studies

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## Course Numbering System

Courses are identified by four-digit numbers following the course prefix. The first digit indicates the level of the course:

**0001-0999** = specialty courses that prepare for future coursework

**1000-2999** = lower division undergraduate courses

**3000-4999** = upper division undergraduate courses

The following second digits designate special types of courses:

**0** = topics

**4** = internships and practica

**5** = cooperative education

**6** = seminars

**7** = honors courses

**8** = independent study

**9** = research

*Note: If the letter L follows the course number, the course is a laboratory course.*

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## Prerequisites and Corequisites

A *prerequisite* is a requirement that must be met (or a course that must be passed) before enrolling in a more advanced course. A *corequisite* is a course which should be taken in the same semester as another.

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## Cross-Listed Courses

A cross-listed course is a single course which is simultaneously listed in the schedule of course offerings by two or more academic departments. They share the same meeting times, room, instructor(s), and curriculum. Students may only receive credit for the single section of the cross-listed course for which they are registered. Credit will not be awarded for a course where credit has been awarded for a cross-listed course.

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## Changes

Course descriptions and numbers are accurate at the time of publication of the *Catalog*. For the most current information, please consult with the academic department or the Class Schedule online at [selfservice.uncc.edu](http://selfservice.uncc.edu).

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## Arts + Architecture Honors Program (AAHP)

### **AAHP 2600. Introductory Honors Seminar. (2)**

Prerequisite: Acceptance in the College of Arts + Architecture Honors Program. Introduces Arts + Architecture Honors students to creative leadership, arts criticism, interdisciplinary interconnections among the spatial, visual, and performing arts, and the role of the arts in the community.

### **AAHP 3001. Honors Seminar in Dance. (3)**

Prerequisite: For students not enrolled in a University, College, or Departmental Honors Program, permission of instructor is required. Concentrated, in-depth study of a selected topic in the history, theory, and/or practice of dance. Topics and course content vary according to the interests and expertise of the faculty; however, the information and requirements are accessible to an interdisciplinary range of students from within and beyond the College of Arts + Architecture.

### **AAHP 3002. Honors Seminar in Architecture. (3)**

Prerequisite: For students not enrolled in a University, College, or Departmental Honors Program; permission of instructor is required.

### **AAHP 3003. Honors Seminar in Music. (3)**

Prerequisite: For students not enrolled in a University, College, or Departmental Honors Program; permission of instructor is required. Concentrated, in-depth study of a selected topic in the history, theory, and/or practice of music. Topics and course content vary according to the interests and expertise of the faculty; however, the information and requirements are accessible to an interdisciplinary range of students from within and beyond the College of Arts + Architecture.

### **AAHP 3004. Honors Seminar in Theatre. (3)**

Prerequisite: For students not enrolled in a University, College, or Departmental Honors Program; permission of instructor is required. Concentrated, in-depth study of a selected topic in the history, theory, and/or practice of theatre. Topics and course content vary according to the interests and expertise of the faculty; however, the information and requirements are accessible to an interdisciplinary range of students from within and beyond the College of Arts + Architecture.

### **AAHP 3005. Honors Seminar in Art and Art History. (3)**

Prerequisite: For students not enrolled in a University, College, or Departmental Honors Program; permission of instructor is required. Concentrated, in-

depth study of a selected topic in the history, theory, and/or practice of art. Topics and course content vary according to the interests and expertise of the faculty; however, the information and requirements are accessible to an interdisciplinary range of students from within and beyond the College of Arts + Architecture.

### **AAHP 3006. Interdisciplinary Honors Seminar. (3)**

Prerequisite: For students not enrolled in a University, College, or Departmental Honors Program, permission of instructor is required. Concentrated, in-depth study of a comparative or inter/multi-disciplinary topic in the history, theory, and/or practice of the visual and performing arts. Topics and course content vary according to the interests and expertise of the faculty; however, the information and requirements are accessible to an interdisciplinary range of students from within and beyond the College of Arts + Architecture.

### **AAHP 3900. Honors Thesis. (3)**

Prerequisite: Permission of instructor and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. An independent thesis project that combines a research agenda with appropriate exploratory practices for the student's discipline. In keeping with the nature of the disciplines of the College of Arts + Architecture, the final product of these theses may vary to include (but not be limited to) a written document, a performance, a concert, or an installation. In all cases, some written and graphic documentation of the ideas and process involved is required for the purposes of evaluation.

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## Accounting (ACCT)

### **ACCT 2121. Principles of Accounting I. (3)**

Prerequisite: sophomore standing. Fundamental accounting principles, with emphasis on the use of financial accounting data and analysis of financial statements.

### **ACCT 2122. Principles of Accounting II. (3)**

Prerequisite: ACCT 2121 with grade of C or above and sophomore standing. An introduction to managerial accounting with an emphasis on using accounting information to make decisions.

### **ACCT 3311. Intermediate Financial Accounting I. (3)**

Prerequisites: College of Business major; and ACCT 2122 and INFO 2130 with grades of C or above. Analysis of the financial reporting requirements of corporations with emphasis on the conceptual framework and accounting for assets.

### **ACCT 3312. Intermediate Financial Accounting II.**

**(3)** Prerequisite: College of Business major; and ACCT 3311 with grade of C or above. A continuation of ACCT 3311 with emphasis on financial reporting for liabilities and stockholders' equity. Also a number of special topics including the accounting for investments and the statement of cash flows.

**ACCT 3330. Managerial Cost Accounting. (3)** Prerequisite: College of Business major; and ACCT 2122 with grade of C or above. Analysis of the uses of accounting data in the planning, controlling and decision-making processes of business enterprises.

**ACCT 3340. Accounting Information Systems. (3)** Prerequisites: College of Business major; and ACCT 2122 and INFO 2130 with grades of C or above. An introduction to accounting systems, with particular emphasis on internal controls and computer auditing techniques.

**ACCT 3350. Introduction to Auditing. (3)** Prerequisites: Accounting major; and ACCT 3311 and ACCT 3312 with grades of C or above. Pre- or corequisite: ACCT 3340. Examines the two basic areas of auditing--external and internal--with the objective of giving students an understanding and appreciation of career opportunities in both areas. The course will examine differences and similarities of both areas of auditing with respect to ethics, standards, the audit process and reporting requirements.

**ACCT 3380. Fraud Examination. (3)** Prerequisite: ACCT 3311 with grade of C or above. Examines the fraud problem faced by businesses and focuses on fraud prevention and detection. Involves the study of the different types of fraud as well as an examination of the various elements of a fraud investigation.

**ACCT 3400. Accounting Internship. (3)** Prerequisites: Junior or Senior accounting major in good standing; ACCT 3312 with grade of C or above; and permission of department. Provides a meaningful work experience in the field of accounting. Requires a minimum of 150 hours of supervised employment, 50 hours of work per credit hour. Students work full-time during the period of internship, therefore, they should plan schedules for Junior and Senior years to accommodate the internship. Internship proposals may be initiated by students or by the department. Students should consult with the department well in advance of registration to discuss available options. Proposal forms must be completed and approved prior to registration and prior to starting the internship. A report on the internship experience is required from both the student and the employer at the conclusion of the internship. *Graded on a Pass/No Credit basis.* Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit.

Student employed when applying for an accounting internship may not earn internship credit through work for the current employer.

**ACCT 3500. Accounting Cooperative Education and 49ership Experience. (0)** Prerequisite: Accounting major with department approval, in conjunction with the University Career Center. Enrollment is required for students participating in a cooperative education or 49ership/service 49ership position during each semester they are working in a position. Participating students pay a course registration fee for transcript notation (co-op and 49ership) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**ACCT 3900. Current Developments in Accounting. (1-3)** Prerequisite: Permission of department. Topics include: internal and external auditing, governmental accounting, income taxes, managerial accounting and accounting theory. A research project is required. *May be repeated for credit with change of topic.*

**ACCT 4220. Income Tax. (3)** Prerequisites: Accounting major and ACCT 3311 with grade of C or above. An introduction to the Federal income tax system with emphasis on concepts and procedures applicable to all types of entities.

**ACCT 4230. Advanced Income Tax. (3)** Prerequisite: ACCT 4220 or equivalent course with a grade of C or above. An examination of advanced tax topics regarding corporations, partnerships, and individuals. In addition, estate and gift, fiduciary accounting, tax-exempt entities, and retirement plans will be examined at an introductory level.

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## Aerospace Studies (AERO)

**AERO 1101. The Air Force Today. (1)** Corequisite: AERO 1101L. Survey of topics relating to the Air Force including officership, professionalism, and basic communicative skills.

**AERO 1101L. The Air Force Today. (0)** Leadership Lab. One credit hour.

**AERO 1102. The Air Force Today. (1)** Corequisite: AERO 1102L. A continuation of AERO 1101 to include a study of organizational structure and missions of the Air Force, life on an active duty base, and the relation

of other armed service components to the Air Force mission.

**AERO 1102L. The Air Force Today. (0)** Leadership Lab. One credit hour.

**AERO 2101. Development of Air Power I. (1)**  
Corequisite: AERO 2101L. Examination of the development of air power from its beginnings through the Cold War emphasizing the evolution of air power concepts and doctrine. An assessment of communication skills is included.

**AERO 2101L. Development of Air Power I. (0)**  
Leadership Lab. One credit hour.

**AERO 2102. Development of Air Power II. (1)**  
Corequisite: AERO 2102L. A continuation of AERO 2101 which examines the history of airpower from Vietnam to the present. Oral communication development is a critical element.

**AERO 2102L. Development of Air Power II. (0)**  
Leadership Lab. One credit hour.

**AERO 3101. Leadership and Management. (3) (0)**  
Corequisite: AERO 3101L. Study of leadership theory and skills, and the Air Force officer's role as a leader. Includes a study of management skills and their value in the military environment. Emphasis is placed on oral and written communication.

**AERO 3101L. Leadership and Management. (0)**  
Leadership Lab. One credit hour.

**AERO 3102. Defense Administration and Military Management. (3) (0)** Corequisite: AERO 3102L. Examination of Air Force doctrine, leadership, and ethics. Emphasis is placed on written and oral communication.

**AERO 3102L. Defense Administration and Military Management. (0)** Leadership Lab. One credit hour.

**AERO 3201. National Security Issues in Contemporary American Society. (3) (0)**  
Corequisite: AERO 3201L. The executive-legislative matrix of our national government is developed and compared with other governmental systems. Special emphasis on the role of the emerging military leader in implementing national policy decisions, civilian control of the military, and regional security issues.

**AERO 3201L. National Security Issues in Contemporary American Society. (0)** Leadership Lab. One credit hour.

**AERO 3202. The Defense Leader: Perspectives on**

**Ethics and Justice. (3) (0)** Corequisite: AERO 3202L. Continued development of the fundamentals presented in AERO 3201 with special emphasis on the military as a profession and officership. Selected ethical and military justice scenarios are presented and discussed to prepare the student with an adequate intellectual framework for action as a professional military officer.

**AERO 3202L. The Defense Leader: Perspectives on Ethics and Justice. (0)** Leadership Lab. One credit hour.

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## Africana Studies (AFRS)

**AFRS 1100. Introduction to Africana Studies. (3)** Interdisciplinary survey of key issues in the life and history of peoples of African descent and their interaction with other peoples and world cultures; introduction to theoretical foundations in the field of Africana Studies.

**AFRS 2011. Yoruba Language and Culture I. (3)** Cross-listed as LACS 1201. First semester elementary Yoruba language and introduction to Yoruba culture. The primary goal is to provide students with the basic spoken, reading, and writing knowledge of Yoruba language, and the cultural and social contexts in which the language functions.

**AFRS 2012. Yoruba Language and Culture II. (3)** Cross-listed as LACS 1202. Prerequisite: AFRS 2011. Second semester elementary Yoruba language, and introduction to Yoruba culture. The primary goal is to provide students with the basic spoken, reading, and writing knowledge of Yoruba language, and the cultural and social contexts in which the language functions.

**AFRS 2050. Topics in Africana Studies. (3)** Treatment of a special topic. *May be repeated for credit with change of topic and permission of department.*

**AFRS 2103. Introduction to Hip Hop. (3)** Examines the musical, corporeal, visual, spoken word and literary manifestations of hip hop from its early years to the present, focusing especially on the political, aesthetic, and lifestyle ramifications of hip hop in the US. The Black cultural practices and the intercultural relations across race, class, and gender that have given rise to the various forms of hip hop in North America will also be analyzed.

**AFRS 2105. Black Images in the Media in the U.S. (3)** Cross-listed as COMM 2120. Examination of African American images projected through electronic and print media, historically and currently.

**AFRS 2107. Global Hip Hop. (3)** Cross-listed as SOCY 2107. The development and growth of Hip Hop from a US inner city Black expressive culture to a global subaltern social movement. Examines cultural production in Hip Hop in relation to the contemporary global issues that focus on the youth, subalterns, and postcolonial experiences.

**AFRS 2120. African American Women. (3)** Cross-listed as WGST 2120. Explores how cultural, political, historical and economic factors shape African American women's positions and opportunities in society today.

**AFRS 2156. African Civilization. (3)** Cross-listed as ANTH 2156. A survey of major cultural innovations and foundations of civilizations in ancient Africa; examination of the origins of ideas, beliefs, institutions, and practices; and the philosophical, religious, social, political and economic foundations of ancient African civilizations. Draws from a wide range of historical sources, especially archaeology, language, literary, oral traditions, and material culture.

**AFRS 2160. The African American Experience through Civil War. (3)** Cross-listed as HIST 2160. Exploration of circumstances that brought Africans to the Americas and their experience during the era of slavery. Emphasis on the political, economic, and socio-cultural systems that maintained slavery in the South and constrained freedom in the North and the responses and struggles of African Americans. Topics include: slavery/slave trading to the Americas; the system of slavery in British North America; free blacks; political compromises sustaining the peculiar institution; and the impact of the Civil War and Reconstruction on the freedom, citizenship, and suffrage of African-Americans.

**AFRS 2161. The African American Experience: Civil War to Civil Rights. (3)** Cross-listed as HIST 2161. Prerequisites: AFRS 1100 or AFRS 1111 for majors. Exploration of the African American experience from the Civil War to the present and the struggle of freed slaves and free people of color in garnering the promises of emancipation and the changing status of African Americans in American society. Interdisciplinary survey of key eras, issues, debates, and personalities in the African American experience from 1865 to the present. It is strongly encouraged that students take AFRS 2160 before enrolling in this course.

**AFRS 2170. Introduction to Health and Environmental Issues in the Africana World. (3)** A general introduction to the cultural, social, political, ethical, and psychological dimensions of health and

environmental issues affecting the African and African Diaspora peoples globally, and the policy implications.

**AFRS 2172. Black Sexuality and Health. (3)** Examines the intersection of sexuality, gender, race, class, and ethnicity, and how they influence social relations and health. Students are introduced to the critical concepts of sex, gender, and sexuality; the links between becoming gendered, sexuality and heterogeneity within African American populations and the impact it has had on health-related issues.

**AFRS 2206. African Literature, Music, and Art. (3) (W)** Survey of socio-cultural context in which African literature, music, and art function; examination of the impact of changes resulting from international dependence and improved communications across continents and cultures; parallels drawn with other regions of the world, particularly the US and Europe. Creative research or community projects required.

**AFRS 2207. Pan-Africanism. (3)** Study of the Pan-African movement; examination of historical and contemporary efforts of peoples of African descent to unite their struggles for human advancement, political independence, and equality in Africa, the US, the Caribbean, Western Europe, and Afro-Latin American. Included in the study are popular movements, leading proponents, and related organizations.

**AFRS 2208. Education and African Americans. (3)** Examination of the problems and challenges of educating African Americans. Topics include: conceptual approaches to education; historical and contemporary overview of education for African Americans; the impact of race and discrimination; analysis of existing curricula; and suggested models for a multi-racial and multi-cultural education.

**AFRS 2215. Black Families in the United States. (3) (W)** Critical and comprehensive examination of the life of African American families in the United States including the historical evolution of black families and their relationship with the political-economic structures of American society.

**AFRS 2221. Contemporary Africa. (3)** Cross-listed as HIST 2211 and INTL 2101. Study of Africa from the 1880s to the present. Focus on political and socio-economic changes and Africa's integration into the community of nations.

**AFRS 2225. West African Dance and Percussion. (3)** Introduction to the practice and cultural theory of West African dance forms. Students are taken through the rhythmic experience of regional West Africa dances accompanied by live drumming. The cultural contexts

of these dances as a window to understanding social norms and societies will be emphasized throughout.

**AFRS 2301. Introduction to African American Literature. (3)** Cross-listed as ENGL 2301. Prerequisite: UWRT 1101 and UWRT 1102, UWRT 1103, or departmental permission. Survey of the major periods, texts, and issues in African American Literature. Prerequisite to 4000-level African American literature courses in Department of English.

**AFRS 3050. Topics in Africana Studies. (3)** Treatment of a special topic. *May be repeated for credit with change of topic and permission of department.*

**AFRS 3101. Perspectives on Race and Ethnicity in the US. (3)** Study of values and make-up of American pluralistic society in historical and contemporary context. Focus on the understanding of African American values and the role of ethnicity and race.

**AFRS 3150. The African American Church and Civil Rights. (3)** Cross-listed as RELS 3150. Role of the African American church in the struggle for human equality. Topics such as radical, moderate, and accommodationist leadership styles; historical development of the black church in the South; and its emergence as a foundation for modern civil rights movement.

**AFRS 3155. Health and Healing in Africa. (3)** Provides an historical context for some of the major healthcare challenges facing Africa today. Traces the history of health and healing from the pre-colonial era through the period of colonial rule, and since political independence. Both the Africa-centered and Western methods of healing and conceptions of health and illness are examined at different junctures in African history.

**AFRS 3158. Gender and African American Literature. (3)** Cross-listed as ENGL 3158. Exploration of the intersection of gender and African American literature, focusing on either Black women writers or Black male writers, or a combination in dialogue.

**AFRS 3159. African American Poetry. (3)** Cross-listed as ENGL 3159. Intensive study of African American poetry, focusing on one period or traversing several.

**AFRS 3179. African American Political Philosophy. (3)** Cross-listed as POLS 3172. Prerequisite: 3000-level course on Africa from AFRS, POLS, or HIST. Analysis of competing ideologies in African American political philosophy.

**AFRS 3190. Political Economy of the Caribbean. (3)** Cross-listed as LTAM 3190. An examination of the manifestations of Caribbean economic problems and policies and Caribbean political development from the post-war period to the present.

**AFRS 3192. African Cinema. (3)** A study of the relationship of African film/video production to historical and contemporary issues in Africa; and the sociopolitical contexts, intertextuality, and aesthetics of African film/video production.

**AFRS 3200. Folklore of Africa and the African Diaspora. (3)** A study of the relationships among African and African Diaspora folktales, folk beliefs, customs, legends, myths, proverbs, poetry, songs, performance, narratives, symbols, and social practices. Using an interdisciplinary approach, the course identifies parallel tales and verbal and performance arts in the Mother Continent and the Diaspora and also studies how geographical environments and historical experiences have impacted new manifestations of African folklore.

**AFRS 3210. Black Families in the Diaspora. (3)** Cross-listed as SOCY 3210 and LTAM 3110. This course is designed to acquaint students with historical and contemporary experiences of peoples of African descent in the Caribbean and Latin American countries with specific emphasis on family structure and family relationships. Includes discussion of theories, history, impact of globalization on family structure, roles of women and identity, socioeconomic status and mobility, slavery, colonialism, and capitalism. Designed to provide students with a better understanding of the comparative relationships and links between family structures and common life experiences among peoples of African descent in different parts of the world, with specific emphasis on the Caribbean and Latin American regions.

**AFRS 3218. Racial Violence, Colonial Times to Present. (3)** Cross-listed as HIST 3218. Examines the ways in which African Americans and Whites used violence both as part of struggles for liberation and freedom as well as repression from the colonial period to the present in the United States. Focuses on the broader processes of social, political, and cultural change and at efforts to build cooperation.

**AFRS 3220. The Caribbean from Slavery to Independence. (3)** Cross-listed as LTAM 3220 and HIST 3180. Covering the sweep of history from European/indigenous contact, through the construction of a plantation regime based on African slave labor, and up to the present day, this course explores the spread of colonialism, the dynamics of slavery, and the tumult of abolition and national independence

movements. The Caribbean Sea is examined as a region, emphasizing the ties uniting the islands and the circum-Caribbean coasts. The region's past - including empire and imperial conflict, racial oppression and interaction, and international contact - and its legacies will be discussed in relation to political economics, race, and contemporary culture.

**AFRS 3230. Poverty and Discrimination in African Diaspora in the Modern Era. (3)** Socio-economic roots of poverty and discrimination in African America, the Caribbean, and Afro-Latin America; impact of anti-poverty and anti-discrimination laws and programs.

**AFRS 3240. African Americans and the Legal Process. (3)** Cross-listed as HIST 3240. Explores the unique role law has played in the African American experience, establishing the status of persons of African descent in America. Students investigate how the legal history of African Americans has shaped American race relations over the past 400 years by tracing the evolution of race, racism, and racial formations as a function of America's legal system.

**AFRS 3250. African Americans and Health Communication. (3)** Focuses on the use of communication strategies to inform and influence individual and community decisions regarding health among African American populations. Considers how health messages are created and the impact they have on African Americans within the context of their lives.

**AFRS 3260. Slavery, Racism, and Colonialism in the African Diaspora. (3)** Cross-listed as LTAM 3260 and HIST 3190. Designed to explore how race and racism, slavery, and colonialism served as principal institutions and constructs shaping the experience between Africa and the emerging African Diaspora in the New World. Students will consider how the maintenance of Western social, economic, and political superiority materialized as functions of these three important historical developments.

**AFRS 3261. Psychology of the Black Experience. (3)** A study of the psychological issues relating to the Black experience in the Americas, using Africa-centered philosophical and psychological frameworks to examine how Black subjectivities have been constructed historically, and how this affects human motivations, self perceptions, cultures, and behaviors among Africa-descended populations.

**AFRS 3265. African Economic Development. (3)** Focus on economic theories, planning, production, and resource allocation strategies, capital formation, foreign aid, and multinational corporations in Africa.

**AFRS 3270. Afro-Latin American History. (3) (W)**

Cross-listed as LTAM 3270 and HIST 3181. This course explores the African Diaspora in Latin America ranging from the Caribbean Sea to the Rio de la Plata. From slavery, to fighting for freedom in the Spanish-American Wars of Independence, to forging new notions of citizenship in twentieth century Brazil, African-descended peoples have an important place in Latin America's historical past. According special attention to regions with concentrated populations of African-descended peoples, this course reveals the vibrant history of Afro-Latin America.

**AFRS 3278. Race in the History of Brazil. (3)** Cross-listed as LTAM 3278 and HIST 3178. Examining the history of Brazil since Portuguese colonization, this course focuses on experiences, struggles, and debates revolving around questions of race and identity. The course interrogates the construction of a slave society, abolition, negotiation of freedom for slaves, and debates around national identity that attended the formation of the Brazilian republic and which have shaped the country in the 20<sup>th</sup> century. The Brazilian experience will be approached comparatively, using the United States and other areas of the African Diaspora for context.

**AFRS 3280. Blacks in Urban America. (3)** Cross-listed as HIST 3280. African Americans have been part of the urban scene since the colonizing of the Americas. Examines the ways in which their presence in cities has both exemplified and contradicted the understanding of both urban development and race relations in America from colonial times to the present.

**AFRS 3290. Research Methods. (3) (O)** Prerequisite: completion of Sophomore-year courses or instructor's permission. Design of a research project with emphasis on developing sound research skills and methods.

**AFRS 3692. Colloquium. (3) (W)** Prerequisite: Permission of instructor. A weekly colloquium; research and writing; opportunity for intellectual stimulation, critique and problem solving. Open to majors and non-majors.

**AFRS 3830. Philosophy and Race. (3)** Cross-listed as PHIL 3830. Examines the role of the concept of race in the Western philosophical canon, and uses current philosophical texts and methods to examine Western discourses of race and racism. Issues such as whiteness, double consciousness, the black/white binary, Latino identity and race, ethnicity, mixed-race identity, and the intersection of race with gender and class are also examined.

**AFRS 3895. Independent Study. (1-3)** Prerequisite: Permission of department. Supervised investigation of

a problem or subject in the field of Africana Studies. *May be repeated for credit.*

**AFRS 3990. Senior Project in Africana Studies. (2-15)** Prerequisite: Completion of junior-year courses. Completion of a senior research paper on an academic topic or a community-related written project. Emphasis on mastery of academic skills and content of the field or specific discipline.

**AFRS 4000. Senior Seminar in Africana Studies. (3)** Prerequisite: Completion of Junior-year courses. This advanced seminar explores a wide-body of literature selected as the eminent scholarship in the field of Africana Studies. Students read, analyze, and critique the scholarly literature of the field and prepare written assignments conceptualizing the course readings and discussions.

**AFRS 4010. African Diaspora Theory. (3)** Explores the diverse conceptual and theoretical perspectives in the African Diaspora Studies, with emphasis on the dialectical relationships between social theories and the African Diaspora, especially as these relate to the issues of race, identity, gender, migrations, cultural production, and transnationalism.

**AFRS 4050. Topics in Africana Studies. (3)** Treatment of a special topic. *May be repeated for credit with change of topic and permission of department.*

**AFRS 4101. Modern African Literature in English. (3)** Prerequisites: Junior standing; and AFRS 1100 or AFRS 2206 for Africana Studies majors. Topics include: Traditional African and Western literary influences, the culture debate, post-independence satire, decolonization of African literature, apartheid, and women writers.

**AFRS 4105. African International Relations. (3)** Cross-listed as POLS 3169. Examines Africa's relations with external powers (including Europe, the United States, and China), cooperation among African countries, the role of non-state actors in African conflicts, and U.S. policy toward the continent.

**AFRS 4401. Professional Internship in Africana Studies. (3)** Prerequisites: Permission of the chair of the department; Junior or Senior standing; Africana Studies major or minor; a minimum GPA of 2.5; AFRS 1100; and up to 12 credits of other AFRS courses. Internship in wide-ranging working environments, including government establishments, private businesses, as well as not-for-profit organizations, especially those focusing on issues affecting African and African Diaspora populations. The internship provides students with experiential learning in an

environment that is consistent with the student's professional goals and growth.

**AFRS 4630. Environmental and Public Health in Africa. (3) (O)** In-depth analysis of environmental and public health hazards in Africa, including pandemic, as well as the principles and practice of public health, pollution control, and waste management. The social and political contexts of the environmental and health issues in Africa are emphasized throughout.

**AFRS 4640. Environment, State, and Society in the Caribbean and Latin America. (3)** The history of the environment in Latin America and the Caribbean, especially the impacts on race, labor, culture, political relations, and state formation from the pre-Columbian period through the present.

**AFRS 4652. Race, Health, and the African Diaspora. (3) (W)** Global approaches to health disparities throughout the African Diaspora using racial, gender, class, and development theoretical frameworks. Explores the comparative relationships between contemporary social and historical factors determining the health status of peoples of African descent residing in different areas of the world.

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## American Studies (AMST)

**AMST 2050. Topics in American Studies. (3)** An introduction to the interdisciplinary approach focusing on aspects of American culture and society. *May be repeated for credit with change of topic and permission of advisor.*

**AMST 2100. Introduction to American Indian Studies. (3)** An introduction to the study of the American Indian experience through selected academic disciplines (e.g., anthropology, history, political science, religious studies) and American Indian intellectual perspectives on, and response to, these disciplines.

**AMST 3000. Seminar in American Studies. (3) (O, W)** An in-depth treatment of an American topic using an interdisciplinary and writing-intensive approach. *May be repeated for credit with change of topic and permission of advisor.*

**AMST 3020. Seminar in American Studies. (3) (W)** An in-depth treatment of an American topic using an interdisciplinary and writing-intensive approach. *May be repeated for credit with change of topic and permission of advisor.*

**AMST 3050. Topics in American Studies. (3)** Introduction to the interdisciplinary approach, demonstrating how traditionally distinct disciplines,

such as literature and history, or art and political science, interrelate and contribute to an understanding of an American topic. *May be repeated for credit with change of topic and permission of advisor.*

**AMST 3090. Topics in American Film. (3)** An in-depth treatment of an American film director, subject, or genre. *May be repeated for credit with change of topic and permission of advisor.*

**AMST 3100. Introduction to American Studies. (3)** Introduction to American culture through an in-depth study of a single decade or era, such as the 1830s, 1890s, 1920s, 1950s or 1960s. Focus on how diverse social, economic, artistic, literary, philosophical, and political forces have shaped American society. Students examine the complex and multifaceted nature of American culture, both as it pertains to the specific era under study and to the present day. *May be repeated for credit with change of topic and permission of advisor.*

**AMST 3210. Childhood in America. (3)** Exploration of the changing nature of childhood in American society. Examines how social and economic developments have affected the child's position in the family, the workplace, and the school. Child-rearing philosophies and techniques from the colonial period to the present and the history of children's literature, toys, and entertainment will be studied.

**AMST 3800. Independent Study or Directed Reading in American Studies. (1-3)** *May be repeated for credit one time with permission of advisor.* (Not limited to American Studies students but should be under the supervision of an American Studies advisor or designate.)

**AMST 4050. Topics in American Studies. (3)** In-depth study using an interdisciplinary approach focusing on aspects of American culture and society. *May be repeated for credit with change of topic and permission of advisor.*

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## Anthropology (ANTH)

**ANTH 1101. Introduction to Anthropology. (3)** Biological and cultural evolution; archaeology; language and culture; comparative study of human social institutions such as kinship, subsistence patterns, religion, politics; methods and theories.

**ANTH 2010. Topics in Ethnography. (3)** Investigation of ethnographic regions of the world. *May be repeated for credit with change of topic.* Examples: Cultures of the Pacific; Cultures of the Mediterranean.

**ANTH 2050. Topics in Archaeology. (3)** Specialized

topics in archaeology. *May be repeated for credit with change of topic.* Example: Archaeology of Gender.

**ANTH 2090. Topics in Anthropology. (1-3)** Specialized topics in anthropology. *May be repeated for credit with change of topic.* Examples: Hunters and Gatherers; Political Anthropology.

**ANTH 2111. Peoples of Africa. (3)** Ethnic and linguistic diversity in Sub-Saharan Africa; ecology and culture; patterns of continuity and change in kinship, marriage, economy, social control, stratification, and religion.

**ANTH 2112. North American Indians. (3)** Survey of the native peoples of America; culture at the time of European contact; major historical events and relationships; contemporary issues in Indian affairs.

**ANTH 2113. Cultures of Russia and East Europe. (3)** Examination of former socialist countries of Russia and East Europe. Ideology and practice of socialism, ethnic relations, reunification, and cultural changes in gender roles, economy, religious practice, and popular culture.

**ANTH 2114. Indians of the Southeastern United States. (3)** Study of American Indians of the Southeastern United States with emphasis on tribes of the Carolinas. Areas of investigation include pre-contact cultures, Indian-European contact relationships, history, and contemporary Southeastern Indian issues.

**ANTH 2115. Culture and Society in the Middle East. (3)** Patterns of subsistence, social and political organization in North Africa and the Middle East. Changes in family and community structures, migration, gender roles, and religious outlook since the colonial period.

**ANTH 2116. Contemporary Latin America. (3)** Cross-listed as LTAM 2116. A survey of the people and cultures of Mexico, Central America, South America, and the Caribbean. Areas of investigation include religion, race, ethnicity, gender, kinship, social inequality, and economic development.

**ANTH 2117. Cultures of the Caribbean. (3)** Cross-listed as LTAM 2117. An introduction to society and culture in the Caribbean region. Areas of investigation include ethnicity, nationalism, family and community structure, economy, religion, and politics.

**ANTH 2121. Comparative Family Systems. (3)** Cross-cultural survey of the origins and forms of the human family and interrelationships with other cultural institutions; role of the family in kinship, marriage,

childrearing, sex roles, economics, political organization, and religion.

**ANTH 2122. Beliefs, Symbols, and Rituals. (3)** Structure and content of systems of belief and ritual; role in social life; analysis of religion, myth, magic, witchcraft, symbol systems, cult movements, and religious change.

**ANTH 2123. Women in Cross-Cultural Perspective. (3)** Cross-listed as WGST 2123. A cross-cultural survey of the lives of women and the dynamics of gender throughout the world. Uses anthropological research to examine how gender influences evolution, social stratification, work, kinship, and perceptions of the body.

**ANTH 2125. Urban Anthropology. (3)** Cross-cultural analysis of urban life; rise of early cities; rural-urban differences; migration; ethnicity, urban poverty; effects of urban life on kinship systems; modernization.

**ANTH 2126. World Population Problems. (3) (W)** An examination of various world population "problems," such as growth, migration, fertility, and population aging, in order to learn how cultural, political, economic, and environmental factors influence and are influenced by the population structure of a given society.

**ANTH 2127. Environmental Anthropology. (3)** Anthropological approaches to environmental issues as they affect people around the world, including the relationships between humans and their natural environments, cultural knowledge about environments, the role of wealth and inequality in environmental interactions, international and global environmental governance, and the effects of these on management decisions and outcomes.

**ANTH 2131. Introduction to Peace, Conflict, and Identity Studies. (3)** Cross-listed as INTL 2131. Asks what identity is and why it matters in people's lives. Offers a cross-cultural examination of the role of different forms of identity including race, ethnicity, gender, nationalism, and class in causing and resolving conflicts. Case studies from different parts of the world are explored.

**ANTH 2141. Principles of Biological Anthropology. (4)** Corequisite: ANTH 2141L. Evolutionary theory; primates; primate and human evolution; population genetics; human variation; osteology; bioethics.

**ANTH 2141L. Principles of Biological Anthropology Lab. (0)** Corequisite: ANTH 2141. Two-hour laboratory session per week. In-depth discussion and debate of assigned readings and anthropological issues

presented in lecture and films; hands-on experience with human osteological material, skeletal material of living primates, and casts of major fossil primates and hominids.

**ANTH 2142. Primate Behavioral Ecology. (3)** Prerequisite: ANTH 2141 or the equivalent or permission of instructor. An examination of primate diversity, including evolution, ecology, social behavior (e.g., communication, aggression, male-female social dynamics, mother-infant bonding, infant development, etc.), reproductive strategies and conservation of prosimians, monkeys, and apes.

**ANTH 2143. The Fossil Evidence for Human Evolution. (3)** Prerequisite: ANTH 2141 or the equivalent or permission of instructor. The theory, methods, and fossil evidence utilized in studying the evolutionary biology of the primates, including humans. Emphasizes the morphological and behavioral/cultural adaptations and phylogeny of fossil and living human/nonhuman primates, focusing on the fossil evidence for reconstructing the human lineage, particularly within the genus *Homo*.

**ANTH 2144. Neanderthals and Us. (3)** Prerequisite: ANTH 2141 or permission of instructor. Explores the life, times, culture and fate of the Neanderthals. Using data derived from the fossil record, archaeology, and genetics, we will examine crucial questions about Neanderthals, including: Who were they? What bio-cultural adaptations allowed them to expand their geographic range and exploit diverse habitats so successfully? What was their lifestyle like and how were they culturally distinct from previous hominids? What happened to them? Do they have any relationship to modern humans like us?

**ANTH 2151. Introduction to Archaeology. (3)** Archaeological method and theory; important archaeological sites and cultures from Old and New Worlds; ethics and public policy in archaeology.

**ANTH 2152. New World Archaeology. (3)** Cross-listed as LTAM 2252. Prehistory of North America; Paleoindians, Eastern United States, Southwest, Mexico; archaeological methods and theory.

**ANTH 2153. Historic Archaeology. (3)** Theories, methods, and data of the archaeology of the post-1492 world; integration of archaeological and documentary research; globalization through material culture; emphasis on North America.

**ANTH 2156. African Civilization. (3)** Cross-listed as AFRS 2156. A survey of major cultural innovations and foundations of civilizations in ancient Africa; examination of the origins of ideas, beliefs, institutions,

and practices; and the philosophical, religious, social, political and economic foundations of ancient African civilizations. Draws from a wide range of historical sources, especially archaeology, language, literary, oral traditions, and material culture.

**ANTH 2161. Introduction to Linguistic Anthropology. (3)** In-depth survey of linguistic anthropology, one of the four major sub-fields of anthropology; study of the relationship between language and culture, with a particular focus on how individual practices and societal norms intersect.

**ANTH 3090. Topics in Anthropology. (1-3)** Prerequisite: ANTH 1101 or permission of instructor. Examination of specialized topics in anthropology. *May be repeated for credit with change of topic.* Examples: Art and Anthropology, Ecological Anthropology.

**ANTH 3101. Foundations of Anthropological Theory. (3)** Prerequisites: ANTH 1101; Anthropology major, minor, or permission of instructor; and Junior standing. History of anthropological theory; the anthropological perspective in the social sciences; current theoretical and methodological issues in anthropology; presenting anthropology through writing and speaking.

**ANTH 3112. Globalization and Culture. (3)** Cross-listed as INTL 3112. This course explores the relationship between processes of globalization and cultural change. It will consider the breakdown of the connection between lived cultural experience and territorial location. Of special interest will be issues of cultural homogenization, cultural hybridization and emergent cultural identities brought about by the flows of people, ideas and objects in the contemporary world.

**ANTH 3113. Economic Anthropology. (3)** Prerequisite: ANTH 1101, ECON 1101, ECON 2102, or permission of instructor. Intellectual roots of anthropological approaches to economy, formalist-substantivist debate, distribution and exchange, commodities, consumption, and material culture.

**ANTH 3116. Cultures and Conflicts. (3)** Cross-listed as INTL 3116. Considers historical ties, geographical inter-connections and economic relationships that underlie contemporary issues involving culture and conflict. Discusses issues of race, class, gender, religion, nationality and citizenship among variously situated population groups and the complicated issues that arise both in the international arena and inside today's multicultural societies.

**ANTH 3117. Narratives and Conflicts. (3)** Cross-listed as INTL 3117. In conflict situations, competing

interpretations of the past can become part of the struggle itself as each side vies for recognition of its version of events. This course focuses on the role these stories play in the historical development of conflicts and the effects they have on efforts to resolve them. It also focuses initially on the role of narratives in the Israeli-Palestinian conflict. Students have the opportunity to explore other cases, including Northern Ireland, Bosnia, and South Africa.

**ANTH 3122. Culture, Health, and Disease. (3) (W)** Relationship between cultural beliefs and practices and patterns of health and illness in human populations; role of disease in ecology and epidemiology, nutrition, cultural systems of healing, roles of patient and healer, culture and emotional states, role of religion, and magic in healing.

**ANTH 3124. Food, Nutrition, and Culture. (3)** Prerequisite: ANTH 1101 or permission of instructor. An examination of how food provides special insight into cultures throughout the world. Topics include: the symbolic and social value of food, the social construction of taste, dietary change, food and health, cannibalism, and famine.

**ANTH 3125. Food and Globalization. (3)** Cross-listed as INTL 3125. Explores the relationship of the modern food system to larger complex economic, political, and cultural processes. Considers how increasing global interaction and interdependence has transformed how we grow, distribute, and consume food. Topics include: the development of the agro-industrial complex; the formation of new food preferences, eating practices, and taste publics; and, the emergence of alternative fair trade, organic, local, and slow food movements.

**ANTH 3132. Aging and Culture. (3) (W)** Examination of the processes of aging in various cultural contexts, with emphasis on the implications for understanding aging within American society. Application of anthropological theories and methods to the study of aging.

**ANTH 3135. Origins of Globalization. (3)** Cross-listed as INTL 3135. An analysis of European colonial expansion from the 16<sup>th</sup> through the 19<sup>th</sup> centuries, emphasizing the creation of the first global systems of political, economic, and cultural interaction that form the foundation of modern globalization. Using a cross-cultural approach, the course explores the competition and conflict among the great powers and the effects of conquest and colonialism on the indigenous peoples of Africa, Asia, and the Americas.

**ANTH 3136. Globalization and Resistance. (3)** Cross-listed as INTL 3136. A cross-cultural analysis of

changing patterns of resistance by indigenous peoples to the political, cultural and economic effects of globalization from the colonial period to the present. Using case studies from the Americas, Africa, and Asia, the course examines a variety of indigenous resistance strategies and movements and the socio-political dynamics that have driven them and impacted on their effectiveness.

**ANTH 3143. Race and Anthropology. (3)**  
Prerequisite: ANTH 2141 or permission of instructor. The goal of this course is to confront the nature and significance of biological diversity in the human species, and the ways in which they have been interpreted and represented scientifically. The three general topics to be covered will be: (1) the history of the study of human diversity and its patterns; (2) the body; and (3) the mind.

**ANTH 3144. Evolutionary Anthropology. (3)**  
Prerequisite: ANTH 2141 or permission of instructor. The aim of this course is to familiarize students with the classic and contemporary literature and issues in evolutionary theory, particularly as applied to human origins. Topics include: primate systematics, homology, adaptation, hierarchy, speciation, and sociobiology.

**ANTH 3145. Anthropological Genetics. (3)**  
Prerequisite: ANTH 2141 or permission of instructor. The goal of this course is to engage genetic knowledge as it relates to humans, particularly in the context of the cultural, social, and ideological issues it overlaps, such as race, behavior, counseling, gender, and indigenous property rights. Readings and discussions will incorporate both the scientific and the social issues.

**ANTH 3152. Early Civilizations. (3)** Prerequisite: ANTH 1101 or 2151 or permission of instructor. Great civilizations of Old and New Worlds; Mesopotamia, India, Greece, Africa, Egypt, China, Mexico, Peru; theories of cultural evolution; beginnings of complex societies; archaeological theory and method; environment, and ecology of first civilizations.

**ANTH 3153. Archaeological Analysis. (3)**  
Prerequisite: ANTH 2151 or permission of instructor. Advanced study of archaeological method and theory; analytical methods; statistics in archaeology.

**ANTH 3154. European Prehistory. (3)** Prerequisite: ANTH 1101 or 2151 or permission of instructor. Prehistory of Europe; Paleolithic, Neolithic, Bronze Age, Iron Age; archaeological methods and theory; ecology and social systems of early European cultures.

**ANTH 3155. Ancient Latin America. (3)** Cross-listed as LTAM 3255. Archaeology and ethnohistory of the

Aztecs, Maya, Inca, and their predecessors; includes an investigation of prehistoric urbanism, the rise and fall of complex societies, and the application of archaeological methods to complex societies.

**ANTH 3157. South American Prehistory. (3)** Cross-listed as LTAM 3257. Archaeology of the indigenous cultures in South America from the earliest settlement until the arrival of the Spanish, including Moche, Nasca, and Inca; focus on the Central Andean region including Peru, Bolivia, Chile, and Ecuador; examination of the origins of agriculture, interactions of people and the environment, rise and collapse of states and empires, and the role of religion and warfare in ancient societies.

**ANTH 3160. Gender, Culture, and Communication. (3)** Cross-listed as COMM 3150. Addresses cultural experiences of gender through communication; material covered includes cultural constructions of femininity and masculinity, cultural socialization toward gender and sexuality, gendered communication in private and public settings, popular representations of gender and sexuality in U.S. media, and language diversity based upon ethnicity, class, gender, and sexual orientation.

**ANTH 3222. Culture, Health, and Disease. (3)** Relationship between cultural beliefs and practices and patterns of health and illness in human populations; role of disease in ecology and epidemiology, nutrition, cultural systems of healing, roles of patient and healer, culture and emotional states, role of religion, and magic in healing.

**ANTH 3895. Directed Individual Study. (1-4)**  
Prerequisites: ANTH 1101 and permission of department. Supervised investigation of specialized topics in anthropology. *May be repeated for credit; up to 6 credits may be applied to the major.*

**ANTH 4090. Topics in Anthropology. (1-3)**  
Prerequisite: ANTH 1101 or permission of instructor. Examination of specialized topics in anthropology. Examples: Anthropology and Globalism; Race, Culture, and Society. *May be repeated for credit with change of topic.*

**ANTH 4110. American Ethnic Cultures. (3)**  
Prerequisite: ANTH 1101 or permission of instructor. An anthropological and ethnohistorical survey of ethnicity, persistence and cultures of the ethnic groups of America. Topics include: theories of ethnicity, immigration, ethnic identity, reasons for immigration, acculturation experiences, and cultural characteristics of established and more recent ethnic groups.

**ANTH 4111. Applied Anthropology. (3) (SL)**

Prerequisites: ANTH 1101 or permission of instructor; ANTH 4122, ANTH 4140, ANTH 4453, or other social science methods course recommended. Cultural dynamics; agents and conditions promoting change; theories and methods of applied anthropology in healthcare, education, development, business.

**ANTH 4120. Intercultural Communications. (3)**

Prerequisite: ANTH 1101 or permission of instructor. Learning to cope with cultural differences; contrasting value systems; cross-cultural and communication styles; nonverbal communication; cultural relativity; culture and perception; ethnocentrism; cultural shock.

**ANTH 4122. Ethnographic Methods. (3)**

Prerequisites: At least 6 hours in ANTH courses or permission of instructor. This course provides students with a basic mastery of the key methods used in cultural anthropological research.

**ANTH 4131. Culture, Pregnancy, and Birth. (3)**

Cross-listed as WGST 4131. Explores how culture shapes the experience and practice of pregnancy and birth. Topics include: the birthing experience, midwifery, infertility, new reproductive technologies, and surrogate motherhood.

**ANTH 4140. Field Biology of the Primates. (3)**

Prerequisite: at least Junior standing; ANTH 2141 and ANTH 2142 or permission of instructor. The theory and methods utilized in the study of nonhuman primate behavior. This applied behavioral primatology course entails original research projects done at an appropriate zoological venue in North and South Carolina.

**ANTH 4141. Forensic Anthropology. (3)**

Prerequisite: ANTH 2141 or permission of instructor. Basic comparative human anatomy and biological anthropology applied to modern problems in the identification of human remains. Issues in recovery, identification, and interpretation of human remains from archaeological, criminal, and disaster investigations. Legal issues about human remains.

**ANTH 4453. Field Project in Archaeology. (1-4)**

Prerequisite: ANTH 1101 or 2151 and permission of instructor. Practical experience in archaeological techniques. Students will participate in field research on an historic or prehistoric archaeological site. Research may include field reconnaissance, excavation, mapping, systematic description and analysis of cultural material, and/or other techniques appropriate to the site and research problem. *May be repeated for credit with change of project; up to 6 credits may be applied toward the Anthropology major. Graded on a Pass/No Credit basis.*

**ANTH 4480. Internship in Anthropology. (3)**

Prerequisite: Permission of department. Research and/or in-service training experience in a cooperating community organization, based upon a contractual agreement among the student, department, and community organization. *May be repeated for credit up to 6 credits. Graded on a Pass/No Credit basis.*

**ANTH 4482. Teaching Internship in Anthropology. (3)**

Prerequisite: at least Junior standing and permission of department. Teaching assistant experience in introductory anthropology. Includes conducting review sessions, lecturing, assisting faculty member with exams, and related activities. *May be repeated for credit up to 6 credits. Graded on a Pass/No Credit basis.*

**ANTH 4601. Seminar in General Anthropology. (3)**

**(O, W)** Prerequisites: ANTH 3101, Senior standing, Anthropology major; at least 24 hours of completed ANTH courses; permission of department; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Synthesis and integration of subfields of anthropology with emphasis on accomplishing original research, and written and oral presentation in anthropology.

**ANTH 4615. Readings in Middle East Ethnography. (3)**

Seminar exploring both historically significant and recent ethnographies on selected topics. Examples include Israel/Palestine, Women in the Middle East, and Tribe, State, and Nation in the Middle East. *May be repeated for credit with change of topic.*

**ANTH 4616. Culture and Conflict in the Amazon. (3)**

Cross-listed as LTAM 4116. Examines the development strategies Brazil has used in the Amazon and explores how these policies have affected both the environment and the various populations living in the Amazon. Topics include: environmental degradation, human rights abuses, culture change, migration, and globalization.

**ANTH 4622. Readings in the Anthropology of Religion. (3)**

Seminar exploring both historically significant and recent ethnographies of religion. Examples include Islam, Religion and the Senses in the Muslim World, Shamanism, Comparative Ethnography of Religion. *May be repeated for credit with change of topic.*

**ANTH 4701. Honors Research in Anthropology. (3)**

Prerequisite: Acceptance into the departmental honors program and permission of department. Independent Honors project; proposal, literature review, and research for project to be completed in ANTH 4601. *Graded on a Pass/No Credit basis.*

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## Arabic (ARBC)

**ARBC 1201. Elementary Arabic I. (4)** For students with limited or no previous experience in Arabic. First course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in modern standard Arabic.

**ARBC 1202. Elementary Arabic II. (4)** Prerequisite: ARBC 1201 or equivalent. Second course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in modern standard Arabic.

**ARBC 2201. Intermediate Arabic I. (4)** Prerequisite: ARBC 1202 or permission of department. Continued training in grammar. Intensive practice in reading, writing, and speaking.

**ARBC 2202. Intermediate Arabic II. (4)** Prerequisite: ARBC 2201 or permission of department. Builds on skills acquired in the first semester intermediate level. Introduced advanced grammatical concepts.

**ARBC 3050. Topics in Arabic Language and Culture. (3) (W)** *May be repeated for credit with change of topic.*

**ARBC 3051. Topics in Arabic Language and Culture. (1-3)** *May be repeated for credit with change of topic.*

**ARBC 3201. Advanced Arabic I. (3)** Prerequisite: ARBC 2202 or permission of department. Review of Arabic grammar and guided conversation on prepared topics. Emphasis on spoken Arabic.

**ARBC 3202. Advanced Arabic II. (3)** Prerequisite: ARBC 3201 or permission of department. Review of Arabic grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

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## Architecture (ARCH)

**ARCH 1101. Architectural Design Studio I. (5)** Corequisite: ARCH 1601. This course begins the core architectural design sequence, which consists of six theme-based studios. The theme of this studio is "Form, Space, and Order." It provides a working knowledge of important studio skills, processes and methods, and develop creative and independent thinking through two- and three-dimensional design problems.

**ARCH 1102. Architectural Design Studio II. (5)** Prerequisites: ARCH 1101 and ARCH 1601. This course continues the architectural design studio sequence by focusing on the theme of "Precedent Analysis." Students interrogate projects of historical and contemporary architecture that reify and expand upon formal investigations initiated in ARCH 1101, and apply those lessons to a design project. This studio expands the base of architectural skills, processes, methods, principles, and issues that affect the built environment we inhabit.

**ARCH 1601. Recording Observations. (2)** Corequisite: ARCH 1101. Projects, lectures, demonstrations, and exercises are used to introduce the skill of freehand drawing. The aim is to understand drawing as a vital means to see, represent, and understand essential aspects of the visual environment.

**ARCH 1602. Components of Form. (2)** Prerequisites: ARCH 1101 and ARCH 1601. Corequisite: ARCH 1102. Projects, lectures, demonstrations, and exercises are used to introduce the skill of freehand drawing. The aim is to understand drawing as a vital means to see, represent, and understand essential aspects of the visual environment.

**ARCH 2101. Architectural Design Studio III. (5)** Prerequisites: ARCH 1102 and ARCH 1602. Corequisite: ARCH 4301. This course continues the architecture design studio sequence by focusing on the theme of "Site." Students interrogate matters of physical and cultural context, site-specific material strategies, and environmental impact/responsiveness through both analysis and design projects. This studio also initiates the instruction of computational design skills and methods.

**ARCH 2102. Architectural Design Studio IV. (5)** Prerequisite: ARCH 2101. Corequisite: ARCH 4302. This course continues the architecture design studio sequence by focusing on the theme of "Program." Students interrogate matters of spatial organization, circulation, and planned/unplanned uses of space through both analysis and design projects. Instruction includes further development of computational design skills and methods.

**ARCH 3601. Writing Architecture. (3) (W)** Prerequisite: ARCH 3101. Corequisite: ARCH 3102. This seminar introduces genres of writing--observation, analysis, reflection, critique, manifesto, and narrative--that are used within the architectural design process and within criticism. Students develop skills with reading architectural texts, and engage successive iterations of critical writing exercises.

**ARCH 3101. Architectural Design Studio V. (5)**

Prerequisite: ARCH 2102. This course continues the architecture design studio sequence by focusing on the theme of “Material and Structural Assemblies.” Students interrogate matters of tectonics, structural systems and material strategies. Physical and computational modeling are emphasized as complementary modes of inquiry.

**ARCH 3102. Architectural Design Studio VI. (5)**

Prerequisite: ARCH 3101. The final studio in the Core Program focuses on the theme of “Systems Integration.” Students interrogate matters of mechanical systems and building envelopes, as well as information systems and new media technologies, foregrounding their impact on sustainability and spatial organization and occupation.

**ARCH 4050. Architecture Elective - Topics. (3)**

Concentrated, in-depth study of selected topic. Topics vary according to faculty expertise and often include contemporary theoretical, social, technological, and design issues.

**ARCH 4101. Architectural Design Studio VII: Advanced Building Design. (5)**

Prerequisite: ARCH 3102. This studio conducts an integrated building design project that synthesizes all six themes and many of the graphic methods of the core program. Students interrogate a complex program on a complex urban site through the use of advanced computation methods, including Building Information Modeling.

**ARCH 4102. Architectural Design Studio VIII: Topical. (5)**

Prerequisite: ARCH 4101. Various studio topics are offered with different emphasis and subject concentration to allow in-depth studio experiences in particular areas of study.

**ARCH 4103. Architectural Design Studio IX: Integrated Building Design. (6)**

Prerequisite: ARCH 4102. In this studio, students execute an integrated design project that fulfills a primary requirement of the accredited professional degree in architecture. Instructors provide sites, program guidelines, and architectural themes, and students work in pairs or small groups to complete a fully resolved building design that addresses contemporary matters of architecture and the city.

**ARCH 4104. Architectural Design Studio X: Design Inquiry. (6)**

Prerequisite: ARCH 4103. In this studio, students delve deeply into individually-defined investigations of specific themes of contemporary relevance. Students take advantage of the proximity of the program to the professional community of Charlotte in order to develop relationships that have both short

term (i.e., project-related) and long term (i.e., career-related) benefits. Rooted in, but also independent of, the projects from ARCH 4103, design-as-research projects culminate in a Project Document that distills the student’s research.

**ARCH 4201. Architectural History I: Prehistory-1750. (3)**

Global survey of architecture and urbanism from prehistory to 1750. Explores key examples of buildings and cities as well as the theoretical, environmental, political, economic, technological, and cultural contexts in which they were built. Provides a general knowledge of the formal, spatial and ornamental characteristics that distinguish the built environment of distinct historic and traditional building cultures.

**ARCH 4202. Architectural History II: 1750-Present. (3)**

Prerequisite: ARCH 4201 or permission of instructor. Global survey of architecture and urbanism from 1750 to the present. Explores key architectural and urban ideas, designers, buildings, and urban projects as well as how they were shaped by their environmental, political, economic, technological, and cultural context.

**ARCH 4203. Architectural History III: Survey of Contemporary Theory (1950-Present). (3)**

Prerequisite: ARCH 4202 or permission of instructor. Survey of architectural theory from 1950 to the present. Focuses on the key ideas, texts, debates, and discourse that have informed architectural practice in the late twentieth and early twenty-first centuries.

**ARCH 4204. Architectural History Topic. (3) (W)**

Prerequisite: ARCH 4202 or permission of instructor. Study of topical areas of history and theory of architecture. These courses are required for architecture majors (3 credit hours of ARCH 4204/ARCH 4205 in the B.A. and 3 credit hours in the B.Arch) to complement the required survey courses (ARCH 4201, ARCH 4202, and ARCH 4203) to develop in-depth research, writing, and presentation skills. *May be repeated for credit with change of topic.*

**ARCH 4205. Architectural History Topic. (3) (W)**

Prerequisite: ARCH 4202 or permission of instructor. Study of topical areas of history and theory of architecture. These courses are required for architecture majors (3 credit hours of ARCH 4204/ARCH 4205 in the B.A. and 3 credit hours in the B.Arch) to complement the required survey courses (ARCH 4201, ARCH 4202, and ARCH 4203) to develop in-depth research, writing, and presentation skills. *May be repeated for credit with change of topic.*

**ARCH 4206. Professional Practice. (3)**

Corequisite: ARCH 4104. Learning objectives include an

understanding of the practice of architecture today, its responsibilities and procedures, and emerging alternative forms of practice and roles of the architect.

**ARCH 4301. Material and Assembly Principles. (3)** Prerequisite: ARCH 4302 or permission of instructor. Introduces quantitative and qualitative characteristics of architectural materials, systems, and processes. Also introduces the physical properties of materials relevant to their application in construction, assembly, and detail systems. Topics include: masonry, concrete, wood, steel, glass, cladding, roofing and flooring materials, and their assemblies.

**ARCH 4302. Environmental Systems Principles. (3)** Introduces qualitative and quantitative analytical methods commonly used to assess the impact of environmental forces on occupant thermal and luminous comfort, energy performance, and regional sustainability. Also introduces the interplay between climatic events, building use, and the architectural variables that inform the appropriate application of building systems technology. Topics include: building envelope performance, and the introduction of passive and mechanical systems for heating, cooling, illuminating, and ventilating buildings.

**ARCH 4303. Structural Principles. (3)** Prerequisite: ARCH 4301. Introduces issues relevant to the fundamentals of structures including statics, strength and stability of materials. Also introduces structural concepts, systems, and the tracing of structural loads through basic principles, physical modeling, and theoretical and analytical methods. Topics include: the interrelationship between strain, stress, and stability, as well as the implications of tension, compression, shear, torsion, and bending.

**ARCH 4304. Structural Systems. (3)** Prerequisites: ARCH 4301 and ARCH 4303. Introduces specific structural applications of wood, steel, concrete, and masonry systems commonly used in small-scale commercial/institutional buildings. Also introduces design of beams, columns, walls, joinery, and connections appropriate to each material type through theoretical, analytical, and computer simulation methods.

**ARCH 4305. Building Systems Integration. (3)** Prerequisites: ARCH 4304 and ARCH 4302. Introduces a set of advanced issues related to the comprehensive, systematic integration of building technology systems commonly used in large-scale buildings through case study, analytical, and simulation methods. Topics address the resolution of the building structure, materials, environmental systems, mechanical systems, electrical systems, life safety, building water supply and waste, and conveying

systems in building design.

**ARCH 4607. Urban Seminar. (3)** Prerequisite: Enrollment in Bachelor of Architecture degree program. An inquiry into critical matters concerning the contemporary city, this course runs parallel to and resonates with an urban building design studio based on the Center City Campus. Topics focus on the social, cultural, political, historical, and theoretical dimensions of the city.

**ARCH 4604. Computational Methods. (3)** Prerequisite: ARCH 2102 or permission of instructor. Advances computation in architecture by understanding the strengths and weaknesses of various kinds of computing and their role in design. Course content included: advanced 3D modeling, basic parametrics, basic scripting, and the importance of digital inquiry. Also introduces computational concepts, their history, and how they relate to design and architecture.

**ARCH 4605. Computational Practice. (3)** Prerequisite: ARCH 4604 or permission of instructor. Capstone course for digital and computational studies in the 5<sup>th</sup>-Year program. The objectives of the course are to provide the use of advanced digital tools, digital fabrication, advanced visualization techniques, scripting, as well as parametric and building information modeling tools.

**ARCH 4890. Directed Independent Study. (1-3)** Prerequisite: Architecture major and permission of chair of instruction. Designed to allow students to pursue faculty-directed independent study topics not provided by other college offerings. *May be repeated for credit with permission of college.*

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## Arts and Sciences (ARSC)

**ARSC 3000. Topics in Arts and Sciences. (3)** Prerequisites: Junior standing and permission of the sponsoring departments. Topics chosen from the general area of the arts and sciences in order to demonstrate relationships and interdisciplinary influences. *May be repeated for credit with change of topics and permission of student's major department.* Can be used toward general degree requirements as indicated each time the course is offered.

**ARSC 3400. Non-Residential Studies. (1-15)** Experience outside the University which provides an alternative learning opportunity to broaden understanding of the major and provide an introduction to various careers. All arrangements for non-residential study must be approved in advance and include a written proposal of goals, methods, duration, hours

credit, and evaluation procedures. The University Career Center is available to assist students to locate appropriate work experiences. Student projects will be approved, supervised, and evaluated within the student's major department. Grading by a faculty advisor may be on a *Pass/No Credit basis*, ordinarily to be taken in the Junior or Senior year. No more than 15 hours of non-residential studies may be presented toward a degree. (Cannot be used toward general degree requirements.) Contact major department or University Career Center for information.

**ARSC 3480. Citizenship and Service Practicum. (3) (O, W)** An interdisciplinary, experiential learning course which examines the relationship between citizenship and service to one's community. Lectures, reading, and seminars explore the historical, ethical, and political foundations of voluntary service for issues such as poverty, homelessness, and social justice. Course meets for two hours of lecture/discussion per week and requires completion of 40 hours of voluntary service in the community.

**ARSC 3500. Arts and Sciences Cooperative Education and 49ership Experience. (0)** Prerequisites: Departmental GPA and credit hours required and approval by the departmental Co-op Coordinator in conjunction with the University Career Center. Enrollment in this course is required for Arts and Sciences students involved in professional work experiences offered through either the 49ership/service 49ership program, or the parallel co-op (part-time work) or the alternating co-op (full-time work) option of the cooperative education program. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

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## Art: Academic & Departmental Art (ARTA)

**ARTA 1402. Gallery Internship. (3)** Participation in all phases of exhibition selection, preparation, and presentation in four campus galleries under supervision of campus galleries coordinator. *May be repeated for credit one time.*

**ARTA 2800. Directed Studies in Art. (1-3)** Prerequisites: Art major; permission of instructor and department. Directed individual research in a

particular artistic field of interest not otherwise offered. *May be repeated for credit.*

**ARTA 3000. Topics in Art. (1-3)** Prerequisite: Art major. Special topic in art. *May be repeated for credit with change of topic.*

**ARTA 3101. Art Writing. (3) (W)** Prerequisites: Art major; UWRT 1101 and UWRT 1102. Intensive writing experience in the forms of writing commonly employed in the visual arts: criticism, journalism, historical research, personal essay.

**ARTA 3201. B.F.A. Portfolio Review. (1)** Prerequisites: Art major; 2.5 GPA; and grades of C or above in one of the following combination of classes (depending on concentration):

Art Education: requirements are listed under the section for the B.F.A. in Art with Concentration in Art Education program

Ceramics: ARTB 1202, ARTB 1206, ARTC 2171, ARTC 2172, either ARTC 3171 or ARTC 3172, concurrent ARTC 3273

Cross Disciplinary: see Advisor for permit

Digital: ARTB 1201, ARTB 1203, ARTB 1206, ARTM 2105

Fibers: ARTB 1202, ARTB 1203, ARTB 1206, ARTF 2151, concurrent ARTF 3352 or ARTF 3353

Graphic Design: ARTB 1201, ARTB 1203, ARTB 1206, ARTG 2180, ARTG 2181, ARTM 2105, concurrent ARTG 3183

Illustration: ARTB 1201, ARTB 1203, ARTB 1206, ARTL 2186

Painting: ARTB 1201, ARTB 1203, ARTB 1206, ARTP 2131

Photography: ARTB 1201, ARTB 1206, ARTT 2191

Print Media: ARTB 1201, ARTB 1203, ARTB 1206, ARTR 2161 or ARTR 2162

Sculpture: ARTB 1202, ARTB 1203, ARTB 1206, ARTZ 2141

Students compile a portfolio of work and written information to apply to any concentration in the B.F.A. in Art. A passing grade reflects acceptance of portfolio and admission into the B.F.A. degree program. Those denied will maintain B.A. degree status. *May be repeated for credit when applying to a different concentration area. Graded on a Pass/No Credit basis.*

**ARTA 3400. Internship in the Arts. (1-3)** Prerequisites: Art major; permission of sponsor instructor and department. Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of an art organization, arts related business, professional artist's studio, or expert craftsworker. Sponsor supervised. A three credit experience requires 120 contact hours per

semester. Repeat for credit with different sponsors. *Graded on a Pass/No Credit basis.*

**ARTA 3800. Independent Study in Art. (1-3)**  
Prerequisite: Art major; permission of instructor and department. Supervised individual research of artistic problems with appropriate documentation of the results. *May be repeated for credit.*

**ARTA 3801. Visual Arts Workshop. (1-6)**  
Prerequisite: Art major; permission of instructor and department. Contracted and pre-approved arrangements for student to receive credit for visual arts workshops conducted outside the University's course offerings. *May be repeated for credit.*

**ARTA 4600. Senior Seminar. (3) (O, W)**  
Prerequisites: UWRT 1101 and UWRT 1102 with grades of C or above, and Senior level art majors in either of final two semesters in art program. Seminar and intensive writing experience explores a variety of general issues in contemporary art with an emphasis on career questions faced by graduating seniors.

**ARTA 4601. B.F.A. Senior Exhibit. (1)** Prerequisites: Art major, Senior standing, and ARTA 3201. Corequisite: ARTC 4972, ARTF 4952, ARTG 4982, ARTL 4981, ARTP 4933, ARTR 4963, ARTT 4992, or ARTZ 4943, depending on concentration. B.F.A. candidates prepare, install, and exhibit a body of work to fulfill B.F.A. exit requirement. *May be repeated for with change in concentration. Graded on a Pass/No Credit basis.*

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## Art: Basic Foundation Studios (ARTB)

**ARTB 1201. 2D Design. (3)** Prerequisite: Art major. Introductory studio exploring basic concepts and techniques of visual organization in two dimensions. Includes study of the formal elements and principals of composition and the interrelationship between form and content. Six contact hours.

**ARTB 1202. 3D Design. (3)** Prerequisite: Art major. A beginning studio emphasizing experimentation with design and materials as related to the exploration of form and space in three dimensions. Six contact hours.

**ARTB 1203. Drawing I. (3)** Prerequisite: Art major. Introduction to drawing involving skills and theory including perspective, proportion, rendering, and expression in a variety of media and techniques. Priority for majors. Six contact hours.

**ARTB 1205. Figure Drawing I. (3)** Prerequisite: Art major. Prerequisite: A grade of C or above in ARTB

1203. A studio course that explores strategies for drawing the human form in terms of anatomy, proportions, expression, movement, and composition with a variety of media and techniques. Six contact hours.

**ARTB 1206. Conceptual Practices. (3)** Prerequisite: Art major. Exposes students to the breadth of makers, means, and modes of expression in the contemporary art world during in-class sessions. In-class discussions, presentations, guest speakers, written assignments, and/or field trips support independent out-of-class studio projects. With these projects, students immediately assume full responsibility for acquiring the means, space and material resources to manifest a creative voice. Experiences are designed to promote the generation of ideas and their integration into objects, sound, digital media, and/or performance. Four contact hours.

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## Art: Ceramics (ARTC)

**ARTC 2171. Ceramics Handbuilding. (3)**  
Prerequisites: Art major and grade of C or above in ARTB 1202. Pre- or corequisite: ARTB 1206. Introduction to handbuilt forming methods, concept development, ceramic materials, and firing procedures. Six contact hours.

**ARTC 2172. Ceramics Wheel 1. (3)** Prerequisites: Art major; a grade of C or above in ARTB 1202. Pre- or corequisite: ARTB 1206. Introduction to wheel forming methods and emphasis on skill development, design, glaze application, utilitarian and sculptural concepts, and basic high-fire techniques. Six contact hours.

**ARTC 3071. Topics in Ceramics. (1-3)** Prerequisite: Art major. Special topics in ceramics. *May be repeated for credit with change of topic.*

**ARTC 3171. Ceramic Sculpture. (3)** Prerequisites: Art major; a grade of C or above in ARTC 2171. Intermediate studio emphasizing sculptural techniques, concepts, and design. Six contact hours.

**ARTC 3172. Ceramics Wheel 2. (3)** Prerequisites: Art major; a grade of C or above in ARTC 2172. Continuation of ARTC 2172 emphasizing development of skills, materials, high temperature firing techniques, design concepts related to utility and sculpture. Six contact hours.

**ARTC 3273. Ceramics 3. (3)** Prerequisites: Art major; a grade of C or above in ARTC 2171, ARTC 2172, and either ARTC 3171 or ARTC 3172. Intermediate development of skills and concepts. More advanced materials and firing techniques. Six contact

hours.

**ARTC 3274. Ceramics 4. (3)** Prerequisites: Art major; a grade of C or above in ARTC 3273 and at least one of the following: ARTA 3201, 3202, or 3203. Continuation of ARTC 3273. Six contact hours.

**ARTC 4175. Ceramics 5. (3)** Prerequisites: Art major; a grade of C or above in ARTC 3274 and at least one of the following: ARTA 3201, 3202, or 3203. Advanced ceramic studio of higher level skills, concepts, and aesthetics with particular emphasis on personal expression and development of an individual clay portfolio. Six contact hours.

**ARTC 4971. Ceramics Projects 1. (3)** Prerequisites: Art major; a grade of C or above in ARTC 4175 and at least one of the following: ARTA 3201, 3202, or 3203. Combination studio and seminar class. Continuation of ARTC 4175 with particular emphasis on personal expression and development of a strong individual clay portfolio. Six contact hours.

**ARTC 4972. Ceramics Projects 2. (3)** Prerequisites: Art major; a grade of C or above in ARTC 4971 and at least one of the following: ARTA 3201, 3202, or 3203. Corequisite: ARTA 4601. Continuation of ARTC 4971 culminating in a body of original ceramic art in preparation for BFA Senior Exhibition. Six contact hours.

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## Art: Drawing (ARTD)

**ARTD 2139. Drawing 2. (3)** Prerequisites: Art major; a grade of C or above in ARTB 1201 and ARTB 1203. Pre- or corequisite: ARTB 1206. Further development of perceptual skills with emphasis on conceptual issues; exploration of subject matter, meaning and content, and thematic development in a variety of black and white and color materials. Six contact hours.

**ARTD 3134. Figure and Anatomy. (3)** Prerequisites: Art major; a grade of C or above in ARTB 1201 and 1205. Pre- or corequisite: ARTB 1206. Emphasizes the study of anatomy as it pertains to drawing. Complex drawing problems in a variety of media. Six contact hours.

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## Art Education (ARTE)

**ARTE 2100. Introduction to Art Education. (3)** Prerequisites: Art major; ARTB 1201 or ARTB 1202 with grade of C or above; ARTH 1211, ARTH 1212, or ARTH 2110; UWRT 1101 or UWRT 1102; 2.5 overall GPA; 2.5 GPA in any completed courses required for the major. Introduction to the history of art education, theories of artistic development, teaching and learning

in K-12 art settings, and planning lessons. Students explore philosophical, socio-cultural, political, and personal issues in art and education. A translation of theory to teaching practice leads to the introduction of personal teaching philosophies and unit planning. A 30-hour practicum is a required part of the course. Note: A grade of B or above in this course is required for admittance to the Major in Art with a Concentration in Art Education. Lecture/lab. Five contact hours.

**ARTE 2121. Developmental Art. (3)** Human growth potential, creative and perceptual development, learning objectives, past and current philosophies, and psychology in art. Individual studio problems involving art elements, principles, and media. Four contact hours. For non-majors only.

**ARTE 3121. Elementary Art Methods. (3)** Prerequisites: Art Education major concentration; admission to College of Education. Analysis of learning themes as related to growth and development in the visual arts; organization of tools, media and materials appropriate for the elementary level; curriculum design in planning art units and lessons, evaluation and motivation techniques. A practicum in an elementary setting is required where the student assists the teacher, tutors students, and teaches a minimum of two art lessons. Lecture/Lab. Five contact hours.

**ARTE 3123. Critical and Creative Thinking in Art Education. (3)** Prerequisites: Art Education major concentration; admission to College of Education; and ARTE 3121 with grade of C or above. Pre- or corequisite: ARTE 4122 with grade of C or above. Design, model, and assess critical and creative learning experiences. Incorporation of learner-centered approaches and development of dynamic environments of thinking through investigations of cognitive, dispositional, and social-emotional aspects of learning in the arts. Critical, creative, and practical thinking skills and dispositions and best-practice research. A practicum at an assigned school is required. Lecture/Lab. Five contact hours.

**ARTE 3124. Transcultural Identities in Art Education. (3)** Prerequisites: Art Education major concentration; admission to College of Education. Examines social and cultural theory, especially as important to informing effective art teaching. Guidance and practice in research, identification, and critical examination of transcultural moments in visual culture/art history for incorporation into all aspects of art teaching. Uses diverse discursive and studio methods to explore and synthesize understanding and mastery of knowledge and skills related to course content. Lecture/Lab. Five contact hours.

**ARTE 4021. Topics in Art Education. (1-3)**

Prerequisite: Art major. Special topics in art education. *May be repeated for credit with change of topic.*

**ARTE 4122. Secondary Art Methods. (3) (O,W)**  
Prerequisites: Art Education major concentration; admission to College of Education; and ARTE 3121 with grade of C or above. Pre- or corequisite: ARTE 3123 with grade of C or above. Analysis of learning themes as related to growth and development in the visual arts; organization of tools, media, and materials appropriate for the secondary level; curriculum design in planning art units and lessons, evaluation, and motivation techniques. A practicum in a secondary setting is required where student assists the teacher, tutors students, and teaches a minimum of two art lessons. Lecture/Lab. Five contact hours.

**ARTE 4124. Contemporary Issues in Art Education. (3)**  
Prerequisites: Art Education major concentration; admission to College of Education; and ARTE 3123 and ARTE 4122 with grades of C or above. Investigates contemporary issues in teaching and curriculum development in the visual arts, and contemporary global issues in art, design, visual culture, and 21st century literacies. Introduces principles and theories of arts-based research and critical pedagogies. A practicum at an assigned school is required. Five contact hours.

**ARTE 4467. Student Teaching in Art. (12)**  
Prerequisites: Art Education major concentration; completion of all required coursework at UNC Charlotte with grades of C or above; and admission to College of Education. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher. Students must demonstrate the competencies identified for teaching art in an appropriate grade level setting. Senior exhibit of candidate and student work is required. At least 500 contact hours.

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## Art: Fibers (ARTF)

**ARTF 2151. Fibers 1. (3)**  
Prerequisites: Art major; ARTB 1202 with grade of C or above. Pre- or corequisite: ARTB 1206. Introduction to the field of fibers, with exploration in constructed fibers, garment forms, and surface design, including weaving, dyeing, printing, and three dimensional construction techniques. Six contact hours.

**ARTF 2256. Rug Weaving. (3)**  
Prerequisite: Art major; ARTF 2151 with grade of C or above. Technical study including warp-faced and weft-faced rugs, pile, and flat woven surfaces. *May be repeated for credit.*

Six contact hours.

**ARTF 2257. Mixed Media Book Arts and Papermaking. (3)**  
Prerequisite: Art major; ARTB 1202 with grade of C or above. Pre- or corequisite: ARTB 1206. An introduction to book art forms including hand-sewn Western Codex, Japanese binding, accordion pleats, sculptural book forms and pop-ups, etc. Students will create a portfolio of handmade papers using abaca and other fibers, and explore three-dimensional paper forms. Six contact hours.

**ARTF 3051. Topics in Fibers. (1-3)**  
Prerequisite: Art major. Special topics in fibers. *May be repeated for credit with change of topic.*

**ARTF 3352. Fibers: Surface Design 1. (3)**  
Prerequisites: Art major; ARTF 2151 with grade of C or above. Exploration of surface design techniques including batik, silkscreen, block printing and other dyeing processes combined with embellishment techniques such as embroidery and beadwork. Six contact hours.

**ARTF 3353. Fibers: Constructed Textiles 1. (3)**  
Prerequisites: Art major; ARTF 2151 with grade of C or above. An exploration of traditional textile construction methods for application in the making of contemporary sculpture and installation works. Techniques covered may include weaving, twining, garment forms, plaiting, felt-making, knotting, coiling, crochet, etc. Six contact hours.

**ARTF 3354. Fibers: Surface Design 2. (3)**  
Prerequisites: Art major; ARTF 3352; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. A continuation of surface design methods such as dyeing, silkscreen and block printing, shibori, marbling and other experimental methods. Fabric manipulation processes are explored, as well as beading, collage, foils, and stitching as mark-making. Six contact hours.

**ARTF 3355. Fibers: Constructed Textiles 2. (3)**  
Prerequisites: Art major; ARTF 3353; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. A continuation of study and application of constructed textile methods in the making of contemporary sculptural forms and installations. Techniques may include sewing, knotting, weaving, crochet and felt-making, etc. Six contact hours.

**ARTF 4951. Fibers Projects 1. (3)**  
Prerequisites: Art major; ARTF 3355; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. Advanced level fiber techniques and concepts with emphasis on personal expression and development of individual fiber portfolio. Six contact hours.

**ARTF 4952. Fibers Projects 2. (3)** Prerequisites: Art major; ARTF 4951; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. Corequisite: ARTA 4601. Emphasis on portfolio development, professional practices specific to the fiber field and preparation for Senior Exhibition. Six contact hours.

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## Art: Graphic Design (ARTG)

**ARTG 2180. Graphic Design Methods. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201. Pre- or corequisite: ARTB 1206. Introduction to the discipline of graphic design. A lecture-based course with a smaller studio component. Focus on graphic design history and the process/methodology unique to the design profession. Project assignments will coincide with lecture material, and will enable students to develop the visual problem solving skills and non-computer-hand skills needed for pursuing further study in graphic design. Four contact hours.

**ARTG 2181. Graphic Design 1. (3)** Prerequisites: Art major; ARTB 1201 and ARTB 1203 with grades of C or above. Pre- or corequisite: ARTB 1206. Introduction to basic graphic design and visual communications principles and the history of design. Exploration of equipment, materials, techniques, and procedures. Emphasis on concept development and basic layout design skills. Six contact hours.

**ARTG 3081. Topics in Graphic Design. (1-3)** Prerequisites: Art major; ARTG 2181 with grade of C or above; and permission of instructor. Special topics in graphic design. *May be repeated for credit with change of topic.*

**ARTG 3183. Graphic Design 2. (3)** Prerequisites: Art major; ARTM 2105, ARTG 2180, and ARTG 2181 with grades of C or above. Intermediate level graphic design and visual communications problem-solving with an introduction to electronic pre-press and print production techniques. Assignments focus on research, concept evolution, designer/client relationships, and the function of the computer as a creative tool. Six contact hours.

**ARTG 3184. Typography. (3)** Prerequisites: Art major; ARTG 3183; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. Investigation of the principles of typography including the expressive characteristics of letterforms, the relationships between image and type, and the application of type to new forms of visual media. Six contact hours.

**ARTG 3287. Environmental Design. (3)** Prerequisites: Art major; ARTG 2181 and ARTG 3183 with grades of C or above. Theory, design, and

fabrication of graphic design systems for museum, incorporated, educational, and other public use spaces.

**ARTG 3408. Graphic Design Internship. (3)** Prerequisite: Art major; ARTA 3201 with grade of C or above; ARTG 3184; and permission of instructor, department, and sponsor (consents required prior to registration). Placement in a professional setting for observation and supervised design-related duties. This experience requires 120 contact hours per semester. Written documentation of internship required. *May be repeated for credit with change in sponsor. Graded on a Pass/No Credit basis.*

**ARTG 4180. Print Production. (3)** Prerequisites: Art major; ARTG 3184; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. Advanced level graphic design problem-solving that concentrates on the relationships between message and media, and the exploration of both digital and traditional production techniques. Topics also include: project planning and scheduling, paper characteristics and selection, and the applied practice of printing as it pertains to visual communication. Six contact hours.

**ARTG 4181. Communications Design. (3)** Prerequisites: Art major; ARTG 3184; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. Advanced study of graphic design as applied to problems in corporate communications and advertising. Project assignments include corporate identity (branding), collateral design, and advertising campaigns for print media. Excellent research, process, design, and presentation skills required. Six contact hours.

**ARTG 4982. Graphic Design Projects. (3)** Prerequisites: Art major; ARTG 4181; and ARTA 3201, ARTA 3202, or ARTA 3203; with grades of C or above. Corequisite: ARTA 4601. Advanced level studio course requiring independent solving of assigned design problems focusing on self promotion and issues pertaining to design and society. Project requirements also include the creation of new portfolio pieces and/or the revision of existing work. Six contact hours.

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## Art History (ARTH)

**ARTH 1211. Art History Survey I. (3)** Survey of world art from prehistory to c. 1300C.E., focusing on the functions and meanings of individual works of art, visual culture, and art history as a discipline. Lecture course.

**ARTH 1212. Art History Survey II. (3)** Survey of world art from c. 1300C.E. to the close of the second World War, focusing on the functions and meanings of individual works of art, visual culture, and art history as

a discipline. Lecture course.

**ARTH 2001. Topics in Art History. (3)** Special Topics in art history. *May be repeated for credit with change in topic.* Lecture course.

**ARTH 2003. Pre-Columbian Art. (3)** Cross-listed as LTAM 3313. Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Survey of the cultures, artistic production and architecture of the Pre-Columbian Americas. Readings and discussions focus on artistic traditions, daily life, and political structures.

**ARTH 2110. Contemporary Art History. (3)** Prerequisite: Art and Art History major. History of primary art movements, artists, and visual culture from 1940 to the present, including theoretical and historical perspectives.

**ARTH 2121 Contemporary African Art. (3)** Prerequisite: ARTH 1211 or ARTH 1212 with grade of C or above or permission of instructor. Survey of contemporary African artists and artworks (1960s to the present day), on the continent and in the diaspora, with international profiles. Readings and discussions focus on politics, gender, class, identity, and mobility.

**ARTH 2140. Medieval Art. (3)** Prerequisite: ARTH 1211 with grade of C or above or permission of instructor. Survey of the architecture, sculpture, stained glass, mosaics, painting, manuscript illumination, and luxury objects of Europe between the fall of the Roman Empire until the beginning of the Renaissance, both in the Byzantine Empire and the western Middle Ages.

**ARTH 2190. Art of the United States. (3)** Cross-listed as AMST 2050. Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Survey of the major artists and movements in the United States from the Colonial period through 1940.

**ARTH 3001. Topics in Art History. (1-3)** Special topics in art history. *May be repeated for credit with change of topic.*

**ARTH 3100. Field Study in Visual Art. (3)** Short, intensive summer course on contemporary art issues combining a seminar (reading, research, discussion, writing, and oral presentation) with a week-long group field trip to major museums, alternative spaces, galleries, and artists' studios in New York City.

**ARTH 3114. Art History Methods. (3)** Prerequisites: Art History major; ARTH 1211, ARTH 1212, and ARTH 2110 with grades of C or above; or permission of instructor. Survey of primary methodologies, theories

and research in the history of art and art criticism, including formalism; iconography; connoisseurship; biography; social history; Marxism; feminism; postmodern, and contemporary theory.

**ARTH 3115. Honors Art History Methods. (3)** Prerequisites: Art History major; ARTH 1211, ARTH 1212, and ARTH 2110 with grades of C or above; or permission of instructor. Survey of primary methodologies, theories and research in the history of art and art criticism, including formalism; iconography; connoisseurship; biography; social history; Marxism; feminism; postmodern, and contemporary theory.

**ARTH 3317. Maya Art. (3)** Cross-listed as LTAM 3300. Prerequisite: ARTH 1211 with grade of C or above or permission of instructor. Survey of the cultures, artistic production and architecture of the Maya from c. 250 to 800 C.E. Readings and discussions focus on Maya rulership and social structure.

**ARTH 3318. Mexica (Aztec) Art. (3)** Cross-listed as LTAM 3301. Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Survey of the cultures, artistic production and architecture of the Central Mexico region from c. 1300 to the period of European invasion in the 16<sup>th</sup> century. Readings and discussions focus on artistic traditions, daily life, and political structures.

**ARTH 3319. Andean Art. (3)** Cross-listed as LTAM 3302. Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Survey of the cultures, artistic production and architecture of the Andean region up to the period of European invasion in 1532. Readings and discussions focus on artistic traditions, cosmology, and political structures.

**ARTH 3320. Ancient Egyptian and Near Eastern Art. (3)** Prerequisite: ARTH 1211 with grade of C or above or permission of instructor. Survey of the arts and architecture of the ancient Near East, Egypt, and Aegean from 3000 - 600 BCE. Readings and discussions focus on issues of ethnicity, gender, religion, and politics.

**ARTH 3322. Ancient Greek Art. (3)** Prerequisites: ARTH 1211 with grade of C or above or permission of instructor. Survey of the arts and architecture of the ancient Greeks, Etruscans, and Persians from c. 800-31 B.C.E. Readings and discussions focus on issues of ethnicity, gender, religion, and politics.

**ARTH 3323. Ancient Roman Art. (3)** Prerequisite: ARTH 1211 with grade of C or above. Survey of the arts and architecture of the peoples included in the Roman Empire from c. 300 B.C.E. to c. 400 C.E.

Readings and discussions focus on issues of ethnicity, gender, religion, and politics.

**ARTH 3328. West African Art and Display. (3)** Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Addresses major genres, monuments, and issues of artistic production in West Africa. Readings and discussions focus on politics, identity, gender, performance, collection, and display.

**ARTH 3349. Gothic Art. (3)** Prerequisite: ARTH 1211 with grade of C or above. Survey of the art and architecture from the 11<sup>th</sup> to the 15<sup>th</sup> centuries in France, Germany, Bohemia, Italy, and the Low Countries.

**ARTH 3350. Northern Renaissance Art. (3)** Prerequisite: ARTH 1212 with grade of C or above. Survey of Netherlandish and German painting, printmaking, and sculpture of the Renaissance. Readings and discussions focus on religion, patronage, and the uses of art in society.

**ARTH 3351. Italian Renaissance Art. (3)** Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Survey of major artists and issues in Italian Renaissance art and architecture. Readings and discussions focus on major centers of artistic activity, patronage, and the rise of Humanism.

**ARTH 3360. Northern Baroque Art. (3)** Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. Survey of Northern European art from the 16<sup>th</sup> and 17<sup>th</sup> centuries. Readings and discussions focus on a variety of artistic genres and art's relationship to religion and politics.

**ARTH 3381. Modernism. (3)** Prerequisite: ARTH 1212 with grade of C or above or permission of instructor. This course will address the history of modern art from 1850-1950 with a special emphasis on the European avant-garde, issues of identity construction (race, gender, sexuality), and theoretical discussions of representation.

**ARTH 3393. History of Photography. (3)** Prerequisite: Art and Art History major status; ARTH 1212 with grade of C or above or permission of instructor. Survey of the major events and stylistic developments in photography from 1839 to the present.

**ARTH 3394. Women in Art. (3)** Cross-listed as WGST 3050. A survey of the works and words of diverse women artists from Medieval to contemporary times with special consideration of social history and art theory. This course combines lectures with discussion, tests, research, and writing.

**ARTH 3395. African American Art. (3)** Prerequisite: ARTH 2110 with grade of C or above or permission of instructor. Survey of the major movements and issues of African American artistic production, from the 17th century to the present day. Readings and discussions focus on stylistic developments, politics, race, gender, identity, and representation.

**ARTH 3810. Independent Study in Art History. (1-3)** Prerequisite: permission of instructor. Supervised individual investigation of art history topic with appropriate documentation of research results. *May be repeated for credit.*

**ARTH 4212. Contemporary Art Theory and Criticism. (3)** Prerequisite: ARTH 3114 with grade of C or above. Major ideas and writings which discuss and interpret the visual arts of the contemporary era; readings in theory and criticism from the postmodern and current periods.

**ARTH 4601. Problems in Pre-Columbian Art History. (3) (O, W)** Prerequisites: Art History major; ARTH 3114 with grade of C or above; ARTH 3317, ARTH 3318, or ARTH 3319 with grade of C or above; or permission of instructor. A seminar designed around a problem in Pre-Columbian Art History, requiring reading, discussion, reports, and a major paper. *May be repeated for credit with change of topic.*

**ARTH 4603. Problems in Ancient Art History. (3) (O, W)** Prerequisites: Art History major; ARTH 3114 with grade of C or above; ARTH 3320, ARTH 3322, or ARTH 3323 with grade of C or above; or permission of instructor. A seminar designed around a problem in Ancient Art History, requiring reading, discussion, reports, and a major paper. *May be repeated for credit with change of topic.*

**ARTH 4605. Problems in Renaissance Art History. (3) (O, W)** Prerequisites: Art History major; ARTH 3114 with grade of C or above; ARTH 3350, ARTH 3351, or ARTH 3360 with grade of C or above; or permission of instructor. A seminar designed around a problem in Renaissance Art History, requiring reading, discussion, reports, and a major paper. *May be repeated for credit with change of topic.*

**ARTH 4609. Problems in Recent Art History. (3) (O, W)** Prerequisites: Art History major; ARTH 3114 with grade of C or above; and ARTH 3390, ARTH 3393, or ARTH 3394 with grade of C or above; or permission of instructor. A seminar designed around a problem in Art History since 1900, requiring reading, discussion, reports, and a major paper. *May be repeated for credit with change of topic.*

**ARTH 4700. Art History Honors Thesis. (3)** Prerequisites: ARTH 3115 with grade of A; permission of instructor; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. The preparation and presentation of an acceptable Honors thesis or its equivalent. The final course in a required three-course sequence for Honors in Art History. Completion of a thesis earning a grade C or above meets the requirement for a 4000-level course in the major; a grade of A is required to earn honors.

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## Art: Illustration (ARTL)

**ARTL 2186. Illustration I. (3)** Prerequisites: Art major; ARTB 1203 with grade of C or above. Pre- or corequisite: ARTB 1206. Survey of the history of illustration and problems in a wide range of media with emphasis on the significant precedents and individuals responsible for shaping the field. Studio projects, demonstrations, and critiques contribute to visual literacy. Six contact hours.

**ARTL 3086. Topics in Illustration. (3)** Prerequisites: Art major; grade of C or above in ARTB 1203. Pre- or corequisite: ARTB 1206. Special topics in illustration. *May be repeated for credit with change of topic.*

**ARTL 3186. Illustration: Media/Method. (3)** Prerequisites: Art major; ARTL 2186 with grade of C or above. Pre- or corequisites: ARTD 2139 and ARTD 3134. Tools and techniques of illustration including preliminary sketching, photography, library, and Internet research.

**ARTL 3187. Children's Book Illustration. (3)** Prerequisites: Art major; ARTL 2186 with grade of C or above; and ARTA 3201, ARTA 3202, or ARTA 3203 with grade of C or above. Survey of layout, research, storyboard, dummy, and finished artwork necessary to create a children's book for presentation to publishers. Come prepared with an idea for a children's book. Six contact hours.

**ARTL 3188. The Figure in Illustration. (3)** Prerequisites: Art major; ARTD 2139; ARTD 3134; ARTL 2186; and ARTA 3201, ARTA 3202, or ARTA 3203; all with grades of C or above. Examination of memory and research techniques to draw the figure in any position or environment. Emphasis on anatomy, form, composition, and costume. Six contact hours.

**ARTL 3286. Illustration Sequence/Story. (3)** Prerequisites: Art major; ARTD 3134; ARTL 2186; and ARTA 3201, ARTA 3202, or ARTA 3203; all with grades of C or above. Pre- or corequisite: ARTD 2139 (for Concentration in Illustration majors); ARTL 2186 (for Concentration in Graphics Design majors).

Relationship between words and pictures. Development of a narrative pictorial approach in problems for a wide variety of markets. Single and sequential images as visual solutions. Six contact hours.

**ARTL 4981. Illustration Projects. (3)** Prerequisites: Art major; ARTL 3186; ARTL 3286; and ARTA 3201, ARTA 3202, or ARTA 3203; all with grades of C or above. Corequisite: ARTA 4601. Initiation and implementation of a self-designed advanced level project solving a complex artistic problem. Research in self promotion, professional practice and portfolio refinement required. Six contact hours.

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## Art: Digital Media (ARTM)

**ARTM 2105. Digital Media. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and ARTB 1203. Pre- or corequisite: ARTB 1206. Methods of digital production within a fine arts context, including an overview of artists and artworks utilizing digital technologies. Six contact hours.

**ARTM 3005. Topics in Digital Media. (1-3)** Prerequisites: Art major; permission of instructor; ARTA 3201, ARTA 3202, or ARTA 3203. Special topics in the creation of digital art. *May be repeated for credit with change of topic.*

**ARTM 3101. Digital Media II. (3)** Prerequisite: Art major; grade of C or above in ARTM 2105. Advanced methods of digital production within the fine arts context. Six contact hours.

**ARTM 3102. 3D Modeling and Animation. (3)** Prerequisites: Art major. Pre- or co-requisite: ARTM 2105. Intermediate studio exploring the use of digital 3D technologies for the creation of art and design works. Six contact hours.

**ARTM 3103. Animation. (3)** Prerequisites: Art major; grade of C or above in ARTM 2105 and ARTA 3201, ARTA 3202, or ARTA 3203. Emphasis on the techniques and digital tools used to create animation and motion graphics.

**ARTM 3105. Video Art. (3)** Prerequisites: Art major; grade of C or above in ARTM 2105. Video as an art form, including basic techniques of video production, editing, and visual effects. Six contact hours.

**ARTM 3205. Interactive Art and Design. (3)** Prerequisites: Art major; grade of C or above in ARTM 2105 and ARTA 3201, ARTA 3202, or ARTA 3203. Advanced work in interactive design. Six contact hours.

**ARTM 3405. Internship in Digital Media. (3)** Prerequisites: Art major; grade of C or above in ARTM 3103, ARTM 3105, or ARTM 3205; and permission of instructor, department, and sponsor (required prior to course registration). Placement in a professional setting for observation and supervised digital media-related duties. This experience requires 120 contact hours per semester. Written documentation of internship required. *May be repeated for credit with change in sponsor. Graded on a Pass/No Credit basis.*

**ARTM 4901. Digital Media Projects 1. (3)** Prerequisites: Art major; grade of C or above in ARTM 3103 or ARTM 3105 and ARTA 3201, 3202, or 3203. Digital media studio focused on producing a body of work related to an artistic problem or theme chosen and explored as visual research by the student. Six contact hours.

**ARTM 4902. Digital Media Projects 2. (3)** Prerequisites: Art major; grade of C or above in ARTM 4901 and ARTA 3201, 3202, or 3203. Corequisite: ARTA 4601. Continuation of ARTM 4901 culminating in a body of original art work in preparation for BFA Senior Exhibition. Six contact hours.

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## Art: Painting (ARTP)

**ARTP 2131. Painting 1. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and 1203. Pre- or corequisite: ARTB 1206. Beginning studio exploring basic theory and technique of painting using oil paints. Six contact hours.

**ARTP 3031. Topics in Painting. (1-3)** Prerequisite: Art major. Special topics in painting. *May be repeated for credit with change of topic.*

**ARTP 3131. Abstract Painting. (3)** Prerequisites: Art major; grade of C or above in ARTP 2131. Intermediate studio exploring varieties of abstraction in modern and post-modern painting practice, using acrylic and oil paints, collage, and mixed media. Six contact hours.

**ARTP 3132. Figure in Painting. (3)** Prerequisites: Art major; grade of C or above in ARTP 2131; ARTB 1205; and ARTA 3201, 3202, or 3203. Intermediate studio exploring the human form as a vehicle for artistic expression using oil and acrylic paints and mixed media. Six contact hours.

**ARTP 3161. Mixed Media. (3)** Prerequisites: Art major; grade of C or above in ARTP 2131. Intermediate studio exploring conceptual problems using color drawing media, painting, collage, and low-tech printmaking techniques. Six contact hours.

**ARTP 4931. Painting Projects 1. (3)** Prerequisites: Art major; grade of C or above in ARTD 2139 and any 2 of the following: ARTP 3131, 3132, 3161; and one of the following: ARTA 3201, 3202, or 3203. Advanced studio exploring individual directions in painting and preparation for Senior Exhibition. Six contact hours.

**ARTP 4932. Painting Projects 2. (3)** Prerequisites: Art major; grade of C or above in ARTP 4931 and any two of the following: ARTP 3131, ARTP 3132, or ARTP 3161. Advanced studio continuing exploration of individual directions in painting and preparation for Senior Exhibition. Six contact hours.

**ARTP 4933. Painting Projects 3. (3)** Prerequisites: Art major; grade of C or above in ARTP 3131, 3132, 3161, 4932; and one of the following: ARTA 3201, 3202, or 3203. Corequisite: ARTA 4601. Advanced Studio continuing exploration of individual direction(s) in painting and preparation for Senior Exhibition. Six contact hours. *May be repeated for credit without exhibition.*

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## Art: Print Media (ARTR)

**ARTR 2161. Print Media 1: Silkscreen, Relief, and Mixed Media. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and ARTB 1203. Pre- or corequisite: ARTB 1206. Introduction to both silkscreen and relief printmaking methods. Both traditional and contemporary approaches are covered, including direct drawing to plate, photographic, and digital methods. Six contact hours.

**ARTR 2162. Print Media 2: Intaglio Methods. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and ARTB 1203. Pre- or corequisite: ARTB 1206. Introduction and exploration of etching, engraving, collagraph, and photo-etching processes, including digital and mixed-media methods. Six contact hours.

**ARTR 3061. Topics in Print Media. (1-3)** Prerequisite: Art major. Special topics in print media. *May be repeated for credit with change of topic.*

**ARTR 3162. Print Media 3: Lithography, Digital and Mixed Media. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and ARTB 1203. Pre- or corequisite: ARTB 1206. Introduction to Lithographic printmaking processes and an exploration of alternative and traditional graphic methods including digital, monotype, and mixed-media methods. Six contact hours.

**ARTR 3263. Print Media 4. (3)** Prerequisites: Art major; grade of C or above in ARTR 2161, ARTR 2162, ARTR 3162 and ARTA 3201, 3202, or 3203.

Exploration of advanced methods in print media with emphasis upon idea development. Employs methodologies learned in prerequisite courses in combination with mixed media approaches. Six contact hours.

**ARTR 4961. Print Media Projects 1. (3)**  
Prerequisites: Art major; grade of C or above in ARTR 3263 and ARTA 3201, 3202, or 3203. Studio exploring individual direction(s) in any method of print and combined media, and preparation for Senior Exhibition. Six contact hours.

**ARTR 4962. Print Media Projects 2. (3)**  
Prerequisites: Art major; grade of C or above in ARTR 4961 and ARTA 3201, 3202, or 3203. Studio exploring individual direction(s) in any method of print and combined media, and preparation for Senior Exhibition. Six contact hours.

**ARTR 4963. Print Media Projects 3. (3)**  
Prerequisites: Art major; a grade of C or above in ARTR 4962 and ARTA 3201, 3202, or 3203. Studio exploring individual direction(s) in any method of print and combined media, and preparation for Senior Exhibition. Six contact hours. *May be repeated for credit without exhibition.*

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## Art: Photography (ARTT)

**ARTT 2191. Photographic Media I. (3)**  
Prerequisites: Art major; grade of C or above in ARTB 1201. Pre- or corequisite: ARTB 1206. Fundamental principles, processes, and aesthetics of black and white photography. Introduction to photographic theory, operation of cameras, and basic darkroom techniques. Principles of photography as a means of personal expression. Six contact hours.

**ARTT 3091. Topics in Photography. (1-3)**  
Prerequisites: Art major; permission of instructor. Special topics in photography. *May be repeated for credit with change of topic.* Six contact hours.

**ARTT 3190. Digital Photography. (3)** Prerequisites: Art major; grade of C or above in ARTT 2191 and ARTM 2105. Exploration of the technical and aesthetic parameters unique to digital photography. Forms of input and output will be discussed along with advanced applications of Adobe Photoshop. Six contact hours.

**ARTT 3191. Camera and Light. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and ARTT 2191. Principles and practices of small, medium or large format photography, in conjunction with available and studio lighting techniques. Emphasis on personal expression. Six contact hours.

**ARTT 3193. Alternative Photographic Media. (3)**  
Prerequisite: ARTT 2191 with grade of C or above. Pre- or corequisite: ARTT 3190. Alternative silver and non-silver photographic media and aesthetics. Experimental studies in the personal and imaginative use of photographic materials. Six contact hours.

**ARTT 3195. Documentary Photography and Video. (3)** Prerequisites: Art major; grade of C or above in ARTT 2191. Examines the nature of photographic documents, considering their sociological, anthropological, and artistic qualities. Students are required to study the history and criticism of documentation and to make a document incorporating historical information and contemporary concerns. Six contact hours.

**ARTT 3391. Black and White Printing. (3)**  
Prerequisites: Art major; grade of C or above in ARTB 1201, ARTT 2191 and ARTA 3201, 3202, or 3203. Continuation of ARTT 2191 with emphasis on contemporary methods, approaches and techniques in silver printing used as a means of creative personal expression. Six contact hours.

**ARTT 4291. Advanced Photographic Media. (3)**  
Prerequisites: Art major; grade of C or above in ARTT 3190, ARTT 3191 and ARTA 3201, 3202, or 3203. Advanced use of photographic media for individual creative expression. *May be repeated for credit.* Six contact hours.

**ARTT 4409. Internship in Photography. (3)**  
Prerequisites: Art major; grade of C or above in ARTT 3191, ARTT 4291, and ARTA 3202; and permission of instructor, department, and sponsor (consents required prior to registration). Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of photography and digital media art organizations, photographically and digital media related businesses, or museum studies. Sponsor and faculty supervised. This experience requires 120 contact hours per semester. *May be repeated for credit with change in sponsor. Graded on a Pass/No Credit basis.*

**ARTT 4991. Photography Projects 1. (3)**  
Prerequisites: Art major; grade of C or above in ARTT 3391; ARTT 4291; and ARTA 3201, 3202, or 3203. Photographic, video and digital media studio focused on producing a body of work related to an artistic problem or theme chosen and explored as visual research by the student. Six contact hours.

**ARTT 4992. Photography Projects 2. (3)**  
Prerequisites: Art major; grade of C or above in ARTT 4991 and ARTA 3201, 3202, or 3203. Corequisite:

ARTA 4601. Continuation of ARTT 4991 and completion of a body of original art work. Six contact hours.

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## Art: Sculpture (ARTZ)

**ARTZ 2104. Installation Art. (3)** Prerequisites: Art major; grade of C or above in ARTB 1201 and 1202. Pre- or corequisite: ARTB 1206. Techniques and methods of creating Installation Art, from the generation of initial ideas, to experimentation, mockups, and final assembly. Emphasis on the historical and creative issues surrounding the nature and definition of installation art. Six contact hours.

**ARTZ 2141. Sculpture 1: Why Sculpture. (3)** Prerequisites: Art major; grade of C or above in ARTB 1202 and 1203. Pre- or corequisite: ARTB 1206. Introduction to Sculpture, developing understanding and application of 3 dimensional design principles with strong emphasis on expressive qualities of objects and their form. Investigates potential of sculpture as a tool of communication in addressing contemporary subjects and phenomena, from the aesthetical and cultural to social and political. Introduces construction techniques using wood, mixed media, assemblage, ready-made objects, clay modeling from life, waste mold making, and plaster casting. Six contact hours.

**ARTZ 2306. Introduction to 3D Modeling and Digital Fabrication. (3)** Prerequisites: Art major; ARTB 1202 and ARTB 1206 with grades of C or above. Introductory studio exploring the use of computer-aided design for the creation of art and design works. Introduces 3D modeling software such as 123D Design, Blender, and/or Rhino as well as a series of fabrication methods. Projects emphasize the use of digital fabrication as a tool for realizing conceptually driven work in ceramics, fiber, and sculptural media. Six contact hours.

**ARTZ 3041. Topics in Sculpture. (1-3)** Prerequisites: Art major; grade of C or above in ARTB 1202. Special Topics in sculpture. *May be repeated for credit with change of topic.*

**ARTZ 3104. Installation Art 2. (3)** Prerequisites: Art major; grade of C or above in ARTZ 2104. Intermediate level continuation of ARTZ 2104. Emphasis is placed on personal expression, concept evolution and site-specific works. *May be repeated credit once.* Six contact hours.

**ARTZ 3142. Sculpture 2: Object vs. Event. (3)** Prerequisites: Art major; grade of C or above in ARTZ 2141. Investigates theory and practice of contemporary sculpture in the context of its history and current developments. Addresses the relevance of

object making vis à vis the era of digital media. Interdisciplinary approach introducing installation and performance as well as metal fabrication and lost wax bronze casting. Emphasizes importance of artistic research. Six contact hours.

**ARTZ 3243. Sculpture 3: Sculpture = Concept. (3)** Prerequisites: Art major; grade of C or above in ARTZ 2104 and 3142. Focuses on conceptual aspects of sculpture/installation. Develops student ability to communicate with audience specific ideas utilizing varied materials and forms of expression. Requires students to present their artistic research in a broad context of reasons for art making. Environmental topics and environmental art/installation are introduced. Introducing more advanced metal and wood fabrication techniques and less traditional sculpture media. Six contact hours.

**ARTZ 3344. Sculpture 4: From Studio to Public Space. (3)** Prerequisites: Art major; grade of C or above in ARTZ 3104, ARTZ 3243; and ARTA 3201, 3202, or 3203. Explores art in public spaces with emphasis on work, which inspires critical dialogue and non-traditional public venues for art, including work integrated into the city infrastructure as well as temporary artistic intervention in the urban environment. Stresses the site-specific character of the work. Introduces media, technologies, and requirements of work in public settings. Six contact hours.

**ARTZ 4941. Sculpture Projects 1. (3)** Prerequisites: Art major; grade of C or above in ARTZ 3344 and ARTA 3201, 3202, or 3203. Advanced studio exploring self-directed artistic investigation based on goals and interests as defined in student's project proposal. A coherent body of work will be created in preparation for the Senior Exhibition. Six contact hours.

**ARTZ 4942. Sculpture Projects 2. (3)** Prerequisites: Art major; grade of C or above in ARTZ 4941 and ARTA 3201, 3202, or 3203. Studio continuing exploration of individual direction(s) in sculpture in preparation for Senior Exhibition. Six contact hours.

**ARTZ 4943. Sculpture Projects 3. (3)** Prerequisites: Art major; grade of C or above in ARTZ 4942 and ARTA 3201, 3202, or 3203. Corequisite: ARTA 4601. Studio continuing exploration of individual direction(s) in sculpture in preparation for Senior Exhibition. Six contact hours.

## Bioinformatics and Genomics (BINF)

**BINF 1101. Introduction to Bioinformatics and Genomics. (4)** Corequisite: BINF 1101L. Designed to introduce students to the genomics perspective in the life sciences, this course combines a general introduction to genomic technologies and the bioinformatics methods used to analyze genome-scale data with a presentation of real world scientific problems where these technologies are having an impact. This course fulfills a General Education science requirement.

**BINF 1101L. Introduction to Bioinformatics and Genomics Lab. (0)** Corequisite: BINF 1101. Designed to introduce students to the genomics perspective in the life sciences, this course provides hands-on experience with biological sequence and structure databases, using small-scale projects to introduce students to the world of bioinformatics research. One three-hour laboratory per week.

**BINF 2111. Introduction to Bioinformatics Computing. (4)** Corequisite: BINF 2111L. Introduction of fundamentals of programming for bioinformatics (sometimes called “scripting”) using current programming languages and paradigms. Introduces both the language and the use of the language within a Unix environment, demonstrating how interpreted languages serve both as a useful tool for writing and testing programs interactively and as a powerful data analysis and processing tool for bioinformatics.

**BINF 2111L. Introduction to Bioinformatics Computing Lab. (0)** Corequisite: BINF 2111. A hands-on computing lab in which students learn bioinformatics computing and programming.

**BINF 2131. Bioinformatics Algorithms. (4)** Prerequisite: ITCS 1212L or equivalent programming experience. Introduces common algorithms and data structures used in bioinformatics and genomics. Consideration is given to the optimization and appropriate use of both through guided computational laboratory exercises.

**BINF 3101. Sequence Analysis. (3)** Prerequisite: Permission of instructor. The purpose, application, and biological significance of bioinformatics methods that identify sequence similarity, methods that rely on sequence similarity to produce models of biological processes and systems, as well as methods that use sequence characteristics to predict functional features in genomic sequence data.

**BINF 3101L. Sequence Analysis Lab. (0)** Corequisite: BINF 3101. A hands-on computing lab in which students learn similarity methods.

**BINF 3121. Statistics for Bioinformatics. (3)** Prerequisites: BINF 2111 and satisfactory completion of either MATH 1103, MATH 1120, MATH 1121, MATH 1241, STAT 1220, STAT 1221, STAT 2122, or permission of instructor based on sufficient demonstration of foundational mathematics concepts. Concepts from probability, stochastic processes, information theory, and other statistical methods are introduced and illustrated by examples from molecular biology, genomics and population genetics while exploring the use of the R and Bioconductor software for biostatistical analysis.

**BINF 3201. Genomic Methods. (4)** Prerequisites: BIOL 1101 and BIOL 1101L; or BIOL 2120; or permission of instructor. Pre- or corequisite: BINF 1101. Corequisite: BINF 3201L. Lecture topics introduce students to core concepts in genomics that allow bench scientists to acquire large datasets in a high-throughput manner as well as address the computational methods used to analyze these data resources.

**BINF 3201L. Genomic Methods Lab. (0)** Corequisite: BINF 3201. Laboratory component of the Genomics Methods course (BINF 3201). Labs are intended to give students hands-on experience in setting up and performing experiments with an emphasis on nucleic acid and protein profiling, understanding and trouble-shooting published protocols, interpreting the data using computational tools.

**BINF 3211. Bioinformatics Databases and Data Mining Technologies. (3)** Prerequisite: BINF 1101. Lecture course that incorporates extensive computational exercises, some of which will be done in class. Lecture topics are intended to introduce students to core concepts in both database management system theory and implementation and in data modeling for genomics data types. Exercises are intended to give students practical experience in setting up and populating a database, using public data repositories and using standard tools for retrieving data (SQL), and further, using existing tools for data mining and visualization of genomics data types. Emphasis placed on standards and emerging practices.

**BINF 3900. Undergraduate Research. (1-3)** Prerequisites: BINF 1101 and permission of instructor. Enables students in the Bioinformatics and Genomics program to initiate research projects in their respective

fields of interest and to interact with faculty in pursuing research experience. *May be repeated for credit.*

**BINF 4010. Topics in Bioinformatics and Genomics. (1-3)** Prerequisite: Permission of department. *May be repeated for credit with permission of department; students may register for multiple sections of the course with different topics in the same or different semesters.*

**BINF 4101. Computational Systems Biology. (3)** Prerequisite: BINF 3101. The process of reconstructing complex biological networks. Reconstruction of metabolic networks, regulatory networks and signaling networks using bottom-up and top-down approaches will be addressed using collections of historical data as well as departmentally generated data. The principles underlying high-throughput experimental technologies and examples given on how this data is used for network reconstruction, consistency checking, and validation will be covered throughout the semester.

**BINF 4111. Structural Bioinformatics. (3)** Prerequisite: BINF 3101. Includes the physical forces that shape biological molecules, assemblies and cells; overview of protein and nucleic acid structure; experimental methods of structure determination; data formats and software for structure visualization; computational methods to evaluate structure; structural classification; structure alignment; computational algorithms for structure prediction; and structural analysis of disease-causing mutations.

**BINF 4171. Business of Biotechnology. (3)** Prerequisite: Junior or Senior standing in a scientific/technical course of study or if in a non-biological/technical or scientific program, special permission of instructor. Introduces students to the field of biotechnology and how biotech businesses are created and managed. The students should be able to define biotechnology and understand the difference between a biotech company and a pharmaceutical company. Additional concepts covered will include platform technology, biotechnology's history, biotechnology products and development processes, current technologies used by biotech companies today, biotechnology business fundamentals, research and development within biotech companies, exit strategies, and careers in the biotech field.

**BINF 4191. Biotechnology and the Law. (3)** Prerequisite: Junior or Senior standing in a scientific/technical course of study or if in a non-biological/technical or scientific program, special permission of instructor. At the intersection of biotechnology and the law, an intricate body of law is forming based on constitutional, case, regulatory and

administrative law. This body of legal knowledge is interwoven with ethics, policy and public opinion. Because biotechnology impacts everything in our lives, the course will provide an overview of salient legal biotechnology topics, including but not limited to: intellectual property, innovation and approvals in agriculture, drug and diagnostic discovery, the use of human and animal subjects, criminal law and the courtroom, agriculture (from farm to fork), patient care, bioethics, and privacy. The body of law is quite complex and it is inundated with a deluge of acronyms. The course will provide a foundation to law and a resource to help students decipher laws and regulation when they are brought up in the workplace.

**BINF 4211. Applied Data Mining for Bioinformatics. (4)** Prerequisite: Permission of department. Concepts and techniques of evaluating bioinformatics data. The objective of this course is to provide students with a working knowledge of data sources, current tools and methodologies used for bioinformatics research through a variety of hands-on data analysis activities.

**BINF 4600. Bioinformatics and Genomics Seminar. (1)** Pre- or corequisite: BINF 3101 or permission of instructor. A Senior-level seminar course designed to introduce students to the research being conducted in both the Department of Bioinformatics and Genomics at UNC Charlotte, as well as through invited speakers from other universities.

**BINF 4650. Senior Project. (1-3)** Prerequisites: Senior standing and permission of department. An individual or group project in the teaching, theory, or application of bioinformatics, genomics, or computational biology under the direction of a faculty member. Projects must be approved by the department before they can be initiated. *May be repeated one time.*

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## Biology (BIOL)

**BIOL 1000. Special Topics in Biology. (1-4)** Prerequisites: Vary by course. Special topics for non-majors in Biology. *May be repeated for credit with change of topic.* Lecture hours and laboratory hours vary by courses taught.

**BIOL 1110. Principles of Biology I. (3)** Introduction to biology for non-majors. Fundamental principles of life with a human emphasis. *Not accepted toward the Biology major.*

**BIOL 1110L. Principles of Biology I Laboratory. (1)** Pre- or corequisite: BIOL 1110. One laboratory period of three hours a week. *Not accepted toward the Biology major.*

**BIOL 1115. Principles of Biology II. (3)** Prerequisite: BIOL 1110 with grade of C or above. Continuation of BIOL 1110 for non-majors. Fundamental principles of life with a human emphasis.

**BIOL 2000. Special Topics in Biology. (1-4)** Prerequisite: varies by course offered. Special introductory topics for biology majors and minors. *May be repeated for credit with change of topic.* Lecture hours and laboratory hours vary with the courses taught.

**BIOL 2120. General Biology I. (3)** Prerequisite: BIOL 1110 with grade of B or above or BIOL 2130 with grade of C or above, or placement by the department. Origin and early evolution of life, basic principles of chemistry, cell biology, and genetics. Three lecture periods per week. *May not be attempted more than twice.*

**BIOL 2130. General Biology II. (3)** Prerequisite: BIOL 1110 with grade of B or above or BIOL 2120 with grade of C or above, or placement by the department. Ecology, evolution, biodiversity, plant and animal structure and function. Three lecture periods per week. *May not be attempted more than twice.*

**BIOL 2140L. General Biology Laboratory. (2)** Prerequisite: A grade of C or above in BIOL 2120 or BIOL 2130. Pre- or corequisite: BIOL 2120 or BIOL 2130. Population ecology, evolution, phylogenetics, invertebrate biology, animal and plant physiology. One three-hour laboratory period and linked laboratory lecture per week. *May not be attempted more than twice.*

**BIOL 2259. Fundamentals of Microbiology. (3)** Prerequisite: BIOL 1110 or BIOL 2120 with grade of C or above; CHEM 1203 or CHEM 1251 with grade of C or above. Basic physiology of bacteria, fungi, protozoa, and viruses, with emphasis on host-parasite interaction and control and epidemiology of infectious diseases. *Not accepted toward the Biology major. May not be attempted more than twice.*

**BIOL 2259L. Fundamentals of Microbiology Laboratory. (1)** Pre- or corequisite: BIOL 2259. One laboratory period of three hours per week. Attendance mandatory for safety training. *Not accepted toward the Biology major. May not be attempted more than twice.*

**BIOL 2273. Human Anatomy and Physiology. (3)** Prerequisites: BIOL 1110 or BIOL 2120 with grade of C or above; CHEM 1203 or CHEM 1251 with grade of C or above. Fundamentals of the anatomy and physiology of the human body. *Not accepted toward the Biology major. May not be attempted more than twice.*

**BIOL 2273L. Human Anatomy and Physiology Laboratory. (1)** Pre- or corequisite: BIOL 2273. One laboratory period of three hours a week. *Not accepted toward the Biology major. May not be attempted more than twice.*

**BIOL 2274. Human Anatomy and Physiology II. (3)** Prerequisite: BIOL 2273 with grade of C or above. Continuation of BIOL 2273. *Not accepted toward the Biology major. May not be attempted more than twice.*

**BIOL 2274L. Human Anatomy and Physiology II Laboratory. (1)** Pre- or corequisite: BIOL 2274. One laboratory period of three hours a week. *Not accepted toward the Biology major. May not be attempted more than twice.*

**BIOL 3000. Special Topics in Biology. (1-4)** Prerequisite: varies by course. Special topics for intermediate-level Biology majors and minors. *May be repeated for credit with change of topic.* Lecture hours and laboratory hours vary with the courses taught.

**BIOL 3111. Cell Biology. (3)** Prerequisites: Biology major or permission of department; and BIOL 2120, BIOL 2130, CHEM 1252, and CHEM 1252L with grades of C or above. Structure and function of cells. Biomolecular structures and their interactions including membranes, proteins and nucleic acids.

**BIOL 3111L. Cell Biology Laboratory. (1) (W)** Prerequisite: BIOL 2140L with grade of C or above. Pre- or corequisite: BIOL 3111. One laboratory period of three hours a week.

**BIOL 3144. Ecology. (3)** Prerequisites: Biology major or permission of department; and BIOL 2120, BIOL 2130, CHEM 1252, and CHEM 1252L with grades of C or above. Interrelationships of organisms and their environment.

**BIOL 3144L. Ecology Laboratory. (1) (W)** Prerequisite: BIOL 2140L with grade of C or above. Pre- or corequisite: BIOL 3144. One laboratory period of three hours a week.

**BIOL 3161. Introduction to Biotechnology. (3)** Prerequisite: BIOL 1110 or BIOL 2120 with grade of C or above, or permission of department. An overview of basic molecular biology, techniques, and uses of biotechnology tools in environmental and biomedical fields. Three lecture hours per week.

**BIOL 3166. Genetics. (3)** Prerequisites: Biology major or permission of department; BIOL 3111, CHEM 1252, and CHEM 1252L with grades of C or above.

Basic concepts of heredity; principles of classical, molecular, and population genetics.

**BIOL 3166L. Genetics Laboratory. (1) (W)**

Prerequisites: BIOL 2140L and BIOL 3111L with grades of C or above. Pre- or corequisite: BIOL 3166. One laboratory period of three hours a week.

**BIOL 3202. Horticulture. (3) (W)** Prerequisites: Biology major or permission of department; BIOL 2120 and BIOL 2130 with grades of C or above. Principles of horticulture, greenhouse management, environmental factors, production, and maintenance of cultivars, and landscaping.

**BIOL 3202L. Horticulture Laboratory. (1)**

Prerequisite: BIOL 2140L. Pre- or corequisite: BIOL 3202. Greenhouse work, plant identification, and field trips. One laboratory period of three hours a week.

**BIOL 3215. Economic Botany. (3) (W)**

Prerequisites: Biology major or permission of department; BIOL 2120 and BIOL 2130 with grades of C or above. Origins of agricultural plants; history of use and misuse of plants by humans; consideration of major groups of crop, spice, medicinal, and drug plants.

**BIOL 3222. General Botany. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120 and BIOL 2130 with grades of C or above. Morphology, physiology, reproduction, phylogeny, and ecology of plants.

**BIOL 3222L. General Botany Laboratory. (1)**

Prerequisite: BIOL 2140L. Pre- or corequisite: BIOL 3222. One laboratory period of three hours a week.

**BIOL 3229. Field Botany. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120, BIOL 2130, and BIOL 2140L with grades of C or above. A field course stressing identification, classification and habitat of the vascular plants, particularly of the Piedmont, but also including the Coastal Plain and the mountains of North Carolina. Six hours a day for 9 days.

**BIOL 3231. Invertebrate Zoology. (4)**

Prerequisites: Biology major or permission of department; BIOL 2120, BIOL 2130, and BIOL 2140L with grades of C or above. Comparative invertebrate anatomy and physiology, as well as life histories and ecology of select taxonomic groups. Three lecture hours and one laboratory period of three hours a week.

**BIOL 3233. Vertebrate Zoology. (4)**

Prerequisites: Biology major or permission of department; BIOL 2120, BIOL 2130, and BIOL 2140L with grades of C or above.

Taxonomy, anatomy, physiology, and life histories of vertebrates. Three lecture hours and one laboratory period of three hours a week.

**BIOL 3234. Field Entomology. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120, BIOL 2130, and BIOL 2140L with grades of C or above. A field course stressing identification and ecology of insects of the Piedmont of North Carolina. Six hours a day for 10 days.

**BIOL 3235. Biology of Insects. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120 and BIOL 2130 with grades of C or above. The anatomy, physiology, development, behavior, ecology, and medical and economic importance of insects.

**BIOL 3236. General Zoology. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120 and BIOL 2130 with grades of C or above. The morphology, function, development, phylogeny, and ecology of the principal invertebrate and vertebrate types.

**BIOL 3236L. General Zoology Laboratory. (1)**

Prerequisite: BIOL 2140L. Pre- or corequisite: BIOL 3236. One laboratory period of three hours a week.

**BIOL 3272. Plant Physiology. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120, BIOL 2130, BIOL 2140L, CHEM 1252, and CHEM 1252L with grades of C or above. Metabolic and physiological processes of plants and conditions which affect or regulate these processes.

**BIOL 3272L. Plant Physiology Laboratory. (1) (W)**

Prerequisites: BIOL 2140L and BIOL 3111L. One laboratory period of three hours a week.

**BIOL 3273. Animal Physiology. (3)**

Prerequisites: Biology major or permission of department; BIOL 2120, BIOL 2130, BIOL 2140L, BIOL 3111, CHEM 1252, and CHEM 1252L with grades of C or above. Fundamental control mechanisms that operate to maintain the homeostatic state.

**BIOL 3273L. Animal Physiology Laboratory. (1) (W)**

Prerequisites: BIOL 2140L and BIOL 3111L. One laboratory period of three hours a week.

**BIOL 3405. Internship in Biology. (1-3)**

Prerequisites: Permission of department. A project-oriented, internship with a biological focus. Supervised by a faculty member in the Department of Biological Sciences. Maximum credit toward major is two hours for B.A. and three hours for B.S. *May be repeated for credit.*

**BIOL 3500. Biology Cooperative Education and 49ership Experience. (0)** Prerequisite: Approval by the department and the University Career Center. Required of students participating in the 49ership/service 49ership or Cooperative Education Program during the semesters in which they are working. Participating students pay a course registration fee for transcript notation (49ership and coop). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**BIOL 3800. Tutorial in Biology. (1-4)** Prerequisites: Permission of department, minimum overall GPA of 2.8 and Biology GPA of 3.0. Enables Biology majors to engage in directed study in their fields of interest. Maximum credit toward major is one hour for B.A.; two hours for B.S. *May be repeated for credit.*

**BIOL 3900. Undergraduate Research. (1-3)** Prerequisites: Permission of department, minimum overall GPA of 2.8 and Biology GPA of 3.0. Enables biology majors to initiate research projects in their respective fields of interest. Maximum credit toward major: six hours for B.A.; nine hours for B.S. *May be repeated for credit with change of topic.* Minimum total of two credit hours of BIOL 3900 may count as one biology lab and a minimum total of four credit hours of BIOL 3900 may count for two biology labs. Maximum of two labs.

**BIOL 4000. Special Topics in Biology. (1-4)** Prerequisite: varies with topic. Special topics for advanced undergraduates. *May be repeated for credit with change of topic.* Lecture hours and laboratory hours vary with the courses taught.

**BIOL 4040. Stem Cells. (3)** Prerequisite: BIOL 3166 with grade of C or above. Current molecular genetics research in the broad field of stem cells. Discussion and interpretation of current research related to stem cell development, differentiation, regeneration, and molecular mechanisms of pluripotency.

**BIOL 4111. Evolution. (3)** Prerequisites: BIOL 3111 and BIOL 3166 with grades of C or above. Theories of evolution and forces, which affect gene frequencies.

**BIOL 4121. Biometry. (4)** Prerequisites: BIOL 2140L, BIOL 3166, and one STAT course with grades of C or above. Advanced biostatistics with design and analysis

of experiments. Three lecture hours and one laboratory period of three hours a week.

**BIOL 4144. Advanced Ecology. (4) (W)** Prerequisites: BIOL 2140L, BIOL 3144, and BIOL 3144L with grades of C or above. Energy flow, nutrient cycles, community structure, population growth, and regulation. Three lecture hours and one laboratory period of three hours a week.

**BIOL 4162. Advanced Biotechnology I. (3) (W)** Prerequisite: BIOL 3111L and BIOL 3161 or BIOL 3166 with grades of C or above. Problem-based learning approach where students work in teams to develop solution strategies that use biotechnology to solve real-world problems. Three lecture hours per week.

**BIOL 4163. Advanced Biotechnology II. (3)** Prerequisites: BIOL 3161 or BIOL 3166 and BIOL 4162 with grade of C or above and permission of instructor. Students work in teams to implement solution strategies developed in BIOL 4162 that use biotechnology to solve real-world problems. One laboratory period and two lecture hours per week.

**BIOL 4167. Medical Genetics. (3)** Prerequisites: BIOL 3111 and BIOL 3166. Various applications of genetics to human health, including studies of the inheritance of diseases in families, mapping of disease genes to specific locations on chromosomes, diagnosis and treatment of genetic disease, and genetic counseling. The major focus is on the molecular mechanisms through which genes cause diseases.

**BIOL 4168. Recombinant DNA Techniques. (4) (W)** Prerequisites: BIOL 3111L, BIOL 3166, or CHEM 4165 with grade of C or above and permission of instructor. Modern molecular biological methods (such as DNA cloning, gel electrophoresis, nucleic acid hybridization, PCR, and DNA sequencing) data analysis and interpretation. Two lecture hour and two laboratory periods of three hours a week.

**BIOL 4171. Cell Physiology. (3)** Prerequisite: BIOL 3111 with grade of C or above. The fundamental physiochemical properties of cells.

**BIOL 4184. Plant Biotechnology. (3)** Prerequisites: BIOL 3111, BIOL 3166, and CHEM 2132 with grades of C or above, or permission of department. A laboratory-oriented course designed to integrate plant molecular biology, recombinant DNA technology, and plant cell and tissue culture. One lecture hour and two laboratory periods of three hours a week.

**BIOL 4199. Molecular Biology. (3)** Prerequisites: BIOL 3111, BIOL 3166, and CHEM 2131 with grades

of C or above. Structural and functional interaction of nucleic acids and proteins in the replication, transcription, and translation of genetic material.

**BIOL 4229. Dendrology. (4)** Prerequisites: BIOL 2140L and BIOL 3229 with grades of C or above. The identification, structure, function, ecology, reproduction, and evolutionary relationships of woody plants. Three lecture hours and one three-hour lab a week.

**BIOL 4233. Parasitology. (3)** Prerequisites: BIOL 2120 and BIOL 2130 with grades of C or above. Morphology, life cycles, ecology, taxonomy, and medical and economic importance of parasites. Three lecture hours a week.

**BIOL 4234. Wildlife Biology. (3) (W)** Prerequisite: BIOL 3144 with grade of C or above. Concepts, principles and techniques of wildlife biology. Value, demography, management, and conservation.

**BIOL 4235. Mammalogy. (4)** Prerequisites: BIOL 2140L and BIOL 3272 or BIOL 3273 with grade of C or above, or permission of instructor. Taxonomy, anatomy, physiology, and life histories of the mammals. Three lecture hours and one laboratory period of three hours a week.

**BIOL 4242. Biology of Birds. (3)** Prerequisite: BIOL 3144 with grade of C or above or permission of department. Overview of general avian biology, including taxonomy and anatomy, but concentrating on behavior, ecology and conservation of birds. Focus on birds of the southeastern U.S. Three lecture hours and one laboratory period of three hours per week.

**BIOL 4242L. Biology of Birds Laboratory. (1)** Corequisite: BIOL 4242. Meets for one three-hour period per week. The laboratory and field portion of the Biology of Birds focuses on field identification and inventory techniques, with an introduction to anatomy. Binoculars are required.

**BIOL 4243. Animal Behavior. (3)** Prerequisites: BIOL 2120 and BIOL 2130 with grades of C or above. An ethological approach to how animals respond to their environment. Causation, development, and adaptive significance of behavior in social systems.

**BIOL 4244. Conservation Biology. (3) (W)** Prerequisite: BIOL 3144 with grade of C or above. Conservation values, extinction rates, genetic diversity, demography, habitat fragmentation, reserve management, ecological restoration.

**BIOL 4244L. Conservation Biology Laboratory. (1)** Prerequisite: BIOL 2140L with grade of C or above.

Pre- or corequisite: BIOL 4244. One laboratory period of three hours a week plus field trips.

**BIOL 4245. Marine Biology. (3)** Prerequisite: BIOL 3111 with grade of C or above. Diversity and adaptations of marine biota, and ecological processes of marine ecosystems.

**BIOL 4250. Microbiology. (3)** Prerequisite: BIOL 3111 with grade of C or above. Morphology, physiology, pathogenicity, metabolism, and ecology of bacteria, viruses, protozoa, and fungi. Aquatic, dairy, and food microbiology.

**BIOL 4250L. Microbiology Laboratory. (1) (W)** Prerequisites: BIOL 2140L and BIOL 3111L with grades of C or above. Pre- or corequisite: BIOL 4250 with grade of C or above. One laboratory period of three hours a week. Attendance mandatory for safety training.

**BIOL 4251. Immunology. (3)** Prerequisite: BIOL 3111 with grade of C or above. Cellular, molecular and genetic basis for immunity; physical chemistry of antigens and antibodies and their interactions; defense mechanisms.

**BIOL 4253. Marine Microbiology. (4)** Prerequisites: BIOL 4250 and BIOL 4250L with grades of C or above. Bacteria, fungi and viruses of marine origin, and their response to the salt, temperature, pressure and nutrient environment of the ocean. Roles of marine microorganisms in public health, pollution and fouling. Three lecture hours and one laboratory period of three hours a week.

**BIOL 4255. Bacterial Genetics. (3)** Prerequisite: BIOL 3166 with grade of C or above. Regulation of gene expression in bacterial systems. Bacteriophage genetics. DNA transfer in bacteria.

**BIOL 4256. Pathogenic Bacteriology. (3)** Prerequisite: BIOL 4250 with grade of C or above. Cellular and molecular interactions of mammalian hosts with prokaryotic parasites.

**BIOL 4256L. Pathogenic Bacteriology Laboratory. (1) (W)** Prerequisite: BIOL 4250L with grade of C or above. Pre- or corequisite: BIOL 4256. One laboratory period of three hours a week.

**BIOL 4257. Microbial Physiology and Metabolism. (3)** Prerequisite: BIOL 4250 with grade of C or above. Lectures in microbial metabolism and physiology, including such topics as bacterial nutrition, transport mechanisms, catabolism and energy production, biosynthesis, global regulation of gene expression. Three one-hour lectures per week.

**BIOL 4257L. Microbial Physiology and Metabolism Lab. (1)** Pre- or corequisite: BIOL 4257. Laboratory exercises covering such topics in general microbiology as characterization of microbial growth, transport, preparation and use of cell-free systems, isolation and electrophoresis of periplasmic proteins, isolation and characterization of membrane lipids, and the polymerase chain reaction. One three-hour lab per week.

**BIOL 4258. Epidemics and Plagues. (3)** Prerequisite: BIOL 3111 or permission from instructor. A study of the history, modeling, epidemiology, environmental, and behavioral changes that contributed to the development of selected epidemics and plagues which have dramatically affected plants, agricultural animals, and humans. Hybrid course with class meetings and online assignments.

**BIOL 4259. Virology. (3)** Prerequisite: BIOL 3166, BIOL 4199, or BIOL 4250 with grade of C or above. Focus on molecular biology, evolution, and pathogenesis of clinically relevant human and animal viruses. Additional topics include: advances in virus-based gene therapy, vaccines, and anticancer agents; viruses as potential bioterrorism threats; bacteriophages and plant viruses; unusual virus-like agents.

**BIOL 4260. Population Genetics. (3)** Prerequisites: BIOL 3166 and STAT 1221 with grades of C or above. The genetics of qualitative and quantitative traits in populations, including an assessment of the factors affecting the extent and pattern of the genetic variation in these traits.

**BIOL 4265. Drugs: Molecular and Cellular Mechanisms. (3)** Prerequisite: BIOL 3111 or permission of instructor. A detailed focus on representative drugs and their target cells and organs to understand mechanisms of action at a molecular and cellular level. Drug discovery, approval, and economics are also discussed.

**BIOL 4272. Comparative Animal Physiology. (3)** Prerequisites: BIOL 2120 and BIOL 2130 with grades of C or above. Pre- or corequisite: BIOL 3111. Fundamental mechanisms and evolutionary diversity of physiological adaptations of animals.

**BIOL 4274. Environmental Toxicology and Health. (3)** Prerequisites: BIOL 2120 and BIOL 2130 with grades of C or above. Pre- or corequisite: BIOL 3111. Molecular, physiological and ecological effects of major environmental pollutants.

**BIOL 4276. Cardiovascular Physiology. (3)** Prerequisites: BIOL 3273 with grade of C or above. Physiology of the cardiovascular system, especially mammalian with emphasis on the experimental basis for our current knowledge.

**BIOL 4277. Endocrinology. (3)** Prerequisites: BIOL 3273 with grade of C or above. Endocrine glands and their physiological roles in metabolism, growth and reproduction.

**BIOL 4279. Neurobiology. (3)** Prerequisite: BIOL 3111 with grade of C or above, or permission of instructor. The molecular and cellular processes of neuronal function in the human central and peripheral nervous systems.

**BIOL 4279L. Neurobiology Laboratory. (1)** Pre- or corequisite: BIOL 4279 with grade of C or above. One laboratory period of three hours a week.

**BIOL 4283. Developmental Biology. (3)** Prerequisite: BIOL 3111 with grade of C or above. Developmental processes occurring chiefly during gametogenesis, fertilization, early embryogenesis, and organogenesis.

**BIOL 4292. Advances in Immunology. (3)** Prerequisite: BIOL 4251 with grade of C or above. Current topics in immunology with particular emphasis upon the genetic systems and molecular mechanisms underlying immune reactions.

**BIOL 4293. Comparative Vertebrate Anatomy. (4)** Prerequisites: BIOL 2140L, BIOL 3111, and BIOL 3111L with grades of C or above. Comparison of selected anatomical systems across vertebrates, with emphasis on evolution and functional analyses. Three hours of lecture and one laboratory period of three hours per week.

**BIOL 4405. Internship/Laboratory Research. (1-3)** Prerequisite: Biotechnology minor, permission of instructor, and permission of the Biotechnology Program director. A biotechnology-oriented internship with either an organization or within a biotechnology-related laboratory within the Departments of Biological Sciences, Civil and Environmental Engineering, or Chemistry.

**BIOL 4600. Senior Seminar. (1) (O, W)** Prerequisites: Biology major, Senior standing, BIOL 3111, BIOL 3144, BIOL 3166, and either BIOL 3272 or BIOL 3273. Student presentation of oral and written reports from pertinent biological literature. Exit exam for Biology majors is administered.

**BIOL 4601. Honors Seminar. (2) (O, W)** Open by invitation to juniors. Exploration of the nature of science, ethics in science, critical analysis, hypothesis testing and statistical analysis, peer review, and research skills. Students analyze professional research papers, present their analyses orally, select an Honors Advisor, and write a research proposal. Exit exam for biology majors will be administered. Two lecture hours with occasional additional hours to attend special lectures and seminars.

**BIOL 4700. Honors Research I. (3)** Prerequisites: BIOL 4601 with grade of C or above and Senior standing. Independent Honors project: proposal, and research. By invitation.

**BIOL 4701. Honors Research II. (3) (O, W)** Prerequisite: BIOL 4700 and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Independent Honors project, including thesis preparation and presentation of results. May be substituted for BIOL 4600 and for one lab.

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## Business Law (BLAW)

**BLAW 3150. Business Law I. (3)** Prerequisite: INFO 2130, Junior standing, business major or permission of department. A study of the legal setting of business and its relationship to the business firm. Topics include: the nature of law and the court system, criminal and civil procedure, alternative dispute resolution, constitutional authority to regulate business, business ethics, criminal law, torts, contracts, the law of sales, intellectual property, and cyberlaw.

**BLAW 3250. Business Law II. (3)** Prerequisite: BLAW 3150; Junior standing, business major or permission of department. The study of the Uniform Commercial Code. Topics include: commercial paper, bank deposits and collections, letters of credit, documents of title, secured transactions, creditors' rights and bankruptcy, agency law, employment law and government regulation of business, business organizations and securities regulation, real and personal property, insurance, wills, trusts, and estates.

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## Business Administration (BUSA)

**BUSA 2130. Business Computing. (3)** Prerequisite: ITCS 2116 with a grade C or above, or permission of department. Application of spreadsheet software to solve business problems. An introduction to basic and advanced Excel functionalities. Fundamental programming methods for Excel VBA to automate tasks to improve productivity.

**BUSA 3090. Topics in Business Analytics. (2)** Prerequisite: Permission of advisor. Exploration of topics from areas of business analytics. Specific topics covered serve as the tool for exploring specialized graduate programs and examining career options.

**BUSA 3120. Financial Management with a Quantitative Focus. (3)** Prerequisites: ACCT 2121, ACCT 2122, ECON 2101, ECON 2102, ITCS 2116, MATH 1242, and STAT 1220 with grades of C or above; Business major; and Junior standing; or permission of department. Principles and problems of financial aspects of managing capital structure, least-cost asset management, planning and control. Computer application is included where appropriate, and students are expected to use calculus and statistics.

**BUSA 3122. Investments with a Quantitative Focus. (3)** Prerequisite: BUSA 3120 with a grade of C or above, or permission of department. Major topics are security analysis and portfolio management. The viewpoint is that of the investment professionals who are concerned with the evaluation of individual securities and management of security portfolios. Students are expected to use calculus and statistics.

**BUSA 3124. Intermediate Microeconomic and Macroeconomic Theory. (3)** Prerequisites: ECON 2101, ECON 2102, and MATH 1242 with grades of C or above or permission of department. Microeconomic analysis with emphasis on consumer theory and the theory of production. Resource allocation and the determination of optimum output and pricing by a firm operating under various market structures. Distribution and welfare theories. Macroeconomic analysis of the level and growth of national income, production, unemployment, the balance of trade, interest rates, and price levels. Fiscal and monetary policies are considered.

**BUSA 3233. Data and Information Management. (3)** Prerequisites: BUSA 2130 and ITCS 2116 with grades of C or above; and Junior standing or permission of department. A study of the design and implementation of databases and enterprise data warehouses for business applications. Exploration of basic concepts of database and data warehouse design, the use of SQL to create and manipulate corporate databases, and the exploration of warehouse management software.

**BUSA 3288. Competitive Advantage with Marketing Analytics. (3)** Prerequisite: MKTG 3110 with a grade of C or above or permission of department. An introduction to the use of Big Data marketing analytics as a strategic resource. A focus is placed on integrating marketing analytics tools, including social

media analytics and mobile analytics, with an understanding of how companies leverage Big Data to gain strategic advantage. Particular emphasis on the analysis and use of Big Data for competitive advantage, the creation of new value, product and business model innovation, micro segmentation, pricing, and promotion decisions.

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## Business (BUSN)

**BUSN 1100. Freshman Honors Seminar. (1)**  
Prerequisite: Freshman standing in the Business Honors Program. A study of selected topics that impact the potential for success of business honors students in school and beyond. Topics include: University life, corporate and community interaction, career selection, keys to success, and practitioner interaction, among others.

**BUSN 1101. Introduction to Business and Professional Development. (3)**  
Prerequisite: Belk College of Business major with less than 35 hours earned. Fundamentals of business, including accounting, economics, entrepreneurship, finance, international business, management, management information systems, and operations and supply chain management. Other topics related to professional development include: career planning, business etiquette, oral and written communication, networking, and professional presence.

**BUSN 1701. Practicum I: Corporate Citizenship. (1)**  
Prerequisite: Permission of the Director of Undergraduate Special Programs. An experiential learning course which examines the relationship between corporate citizenship and service to one's community. Lectures, readings, and seminars explore the historical, ethical, and economic foundations of service in business, highlighting issues such as corporate giving, environmental impact of business decisions, and industry professionalism. Prepare for 40 hours non-profit service.

**BUSN 2000. Topics in Business and Economics. (1-3)**  
Current topics from business and economics. *May be repeated for credit with change of topic and permission of department.*

**BUSN 2701. Practicum II: Professionalism and Service Seminar. (1)**  
Prerequisite: Permission of the Director of Undergraduate Special Programs. An examination of acceptable industry norms, values, and ethics in the workplace. Simultaneously students complete a 40 hour service project with an approved non-profit organization.

**BUSN 2702. Practicum III: Leadership and Group Dynamics. (1)**  
Prerequisite: Permission of the

Director of Undergraduate Special Programs. Students plan and implement a group service project using the fundamentals of communication, planning, organizing, financing, and marketing. Concurrently, students explore and develop their leadership profile by engaging in thoughtful discussions, reflection, and exercises.

**BUSN 3400. Business Honors Internship. (3)**  
Prerequisites: Sophomore, Junior, or Senior in good standing in the Business Honors Program; and permission of the Director of Undergraduate Special Programs and the Assistant Director of the Student Center for Professional Development. Provides a meaningful work experience, appropriate for the level of completed coursework of the student. Requires 150 hours of supervised employment. Requires a portfolio and summary paper describing the business issues and processes learned through the experience. Internship proposals must be initiated by the student. Students should consult with the Director of Undergraduate Special Programs in advance of registration to verify acceptability of work experience. Proposal forms must be completed and approved prior to registration.

**BUSN 3770. Business Honors Thesis Topics. (1)**  
Prerequisite: Permission of the Assistant Director of the Business Honors Program. Exploration of current business research topics through presentations by business faculty. *Graded on a Pass/No Credit Basis.*

**BUSN 4701. Business Honors Thesis. (3)**  
Prerequisites: Permission of the Director of Undergraduate Special Programs and approval of a thesis proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Honors project directed by Business Honors committee or assigned faculty member. One faculty contact hour per week and independent research.

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## Civil and Environmental Engineering (CEGR)

*Courses must be completed to progress within three attempts including withdrawing from the course with a grade of W. Failure to progress in three attempts will result in suspension from the program.*

**CEGR 2101. Civil Engineering Drawing. (2)**  
Introduction to engineering drawing in the environmental, geotechnical, transportation, and structural sub-disciplines of civil engineering, including sketching, principles of Mechanical drawing, and computer aided drawing (CAD). CAD utilizes the MOSAIC computing environment. One hour of lecture and three hours of laboratory per week.

**CEGR 2102. Engineering Economic Analysis. (3)**  
Prerequisite: ENGR 1201. Economic analysis of engineering solutions; present and annual worth analysis; cost benefit analysis; internal rate of return analysis; bonds and cost estimating. Three hours per week.

**CEGR 2104. Surveying and Site Design. (3)**  
Prerequisite: ENGR 1202. Elements of plane surveying, including taping, use of level, total station, and GPS; topographical surveying and mapping; error adjustment; area and volume computations; site development; computer applications. One hour of lecture and 3 hours of field work for four weeks: three hours of lecture.

**CEGR 2154. Design Project Lab. (2) (0)**  
Prerequisite: CEGR 2102. Problem definition, evaluation of design alternatives, design concepts, conceptual design. Students work together in teams to find, present, and defend their solutions to real world civil engineering problems. One hour of lecture and 3 hours of laboratory per week.

*Upper division engineering courses (3000 level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**CEGR 3090. Special Topics in Civil Engineering. (1-4)**  
Prerequisite: Permission of CEE Advisor. Examination of specific new areas emerging in the various fields of civil engineering based upon and synthesizing knowledge students have gained from engineering science, mathematics, and physical science stems of the core curriculum. *May be repeated for credit up to 6 credits.*

**CEGR 3111. Construction Engineering. (3)**  
Prerequisites: CEGR 3122, CEGR 3255, and CEGR 3278. The principles and techniques of engineering construction projects from the conceptual phase, through design and construction, to completion and close-out are presented. Students develop the analytical skills and awareness necessary on the design engineering side of construction projects. Topics include: project initiation, estimating, budgeting, allocation of resources, construction equipment, formwork and bracing, temporary structures, erection and assembly methods, application of PCI, ASCE, and AASHTO codes, and value engineering.

**CEGR 3122. Structural Analysis. (3)** Prerequisites: MATH 2171 and MEGR 2144 with grades of C or above; and Junior standing. Analysis of statically determinate and indeterminate beams, trusses and frames to include shear and moment diagrams, rough

deflected shapes and deflections; influence lines and criteria for moving loads; indeterminate analyses to include methods of consistent deflection, slope deflection, and moment distribution.

**CEGR 3141. Introduction to Environmental Engineering. (3)** Prerequisite: MATH 2171, CHEM 1251, CHEM 1251L, and MEGR 2141 with grades of C or above; CEE major; and Junior standing. Environmental engineering concepts, including stream pollution analysis, water and wastewater treatment processes; solid and hazardous waste management practices; pollution problems and controls; mass balance analyses, and review of pertinent legislation.

**CEGR 3143. Hydraulics and Hydrology. (3)**  
Prerequisites: MATH 2171 and MEGR 2141 with grades of C or above; and Junior standing. Fluid properties, pressure, closed-conduit flow, pipe network, pumps, open channel flow, weirs, orifices, flumes; precipitation, runoff, groundwater flow, steam flow, flow measurement.

**CEGR 3153. Transportation Laboratory. (2) (W)**  
Pre- or corequisite: CEGR 3161. Design of transportation systems, including highways, airports, pipelines, and mass transit; route layout, geometric design and earthwork calculations; computer-aided system simulation and evaluation. Technical report writing and evaluation of components of written technical communication. One and a half hours of lecture and three hours of laboratory per week.

**CEGR 3155. Environmental Laboratory. (2) (W)**  
Prerequisites: CHEM 1251 and CHEM 1251L. Pre- or corequisite: CEGR 3141. Laboratory problems in environmental engineering. Emphasis on analysis and presentation of results as well as on the significance of results as they affect theory and/or practice. Technical report writing and evaluation of different forms of written communication. One and a half hours of lecture and three hours of laboratory per week.

**CEGR 3161. Transportation Engineering I. (3)**  
Prerequisite: MATH 2241; CEGR 2102, CEGR 2104, and MEGR 2141, all with grades of C or above; and Junior standing. Analysis of transportation facilities; planning, location, economic considerations, safety analysis, and Intelligent Transportation components, with special emphasis on land transportation.

**CEGR 3201. Systems and Design. (3)** Prerequisites: Senior standing in Civil Engineering, CEGR 2154, CEGR 3122, CEGR 3141, CEGR 3143, CEGR 3161, CEGR 3278, Construction Engineering and one design elective in any of the four core areas of Civil Engineering (Environmental, Geotechnical, Structures, Transportation) with a C or above. Systems

engineering techniques applied to civil engineering problems emphasizing methodological considerations, evaluating alternatives and developing engineering plans carried out by small groups of students.

**CEGR 3202. Systems and Design II. (4)**  
Prerequisite: CEGR 3201 in immediate preceding semester. Continuation of CEGR 3201. Creatively investigate the produce alternative solutions for a comprehensive engineering project resulting in written and verbal class presentations. One hour of lecture and three hours of laboratory per week.

**CEGR 3212. Computer Applications in Civil Engineering. (3)** Prerequisites: Three of the following: CEGR 3122, CEGR 3141, CEGR 3143, CEGR 3161, or CEGR 3278. Application of computers and numerical methods to various types of civil engineering problems. Examinations in depth of selected civil engineering problems.

**CEGR 3221. Structural Steel Design I. (3)**  
Prerequisites: CEGR 3122 and CEGR 3255 with grades of C or above. Analysis and design of structural steel components with emphasis on theories necessary for a thorough understanding of the design procedure. Design philosophies and types of steel structures. Columns, tension members and laterally supported beams are considered. General Flexural theory, including bending of unsymmetrical sections. Current AISC Specifications used.

**CEGR 3225. Reinforced Concrete Design I. (3)**  
Prerequisite: CEGR 3122 and CEGR 3255 with grades of C or above. Analysis and design of reinforced concrete components with emphasis on fundamental theories. Mechanics and behavior of reinforced concrete. Flexural members to include singly and doubly-reinforced beams of various cross sections (rectangular, T-beams, joists, one-way slabs, and others). Shear in beams and columns. Short columns to include uniaxial and biaxial bending. Construction of short column interaction diagrams. Introduction to footings. Current ACI Specifications.

**CEGR 3231. Land Development Engineering Fundamentals. (3)** Prerequisite: CEGR 3161. Analysis of land development industry practices and basic business principals. Analyze land forms for implementation of practical engineering solutions based on social, economic and environmental factors. Analyze and design infrastructure planning of residential and non-residential land development projects.

**CEGR 3232. Urban Engineering. (3)** Prerequisite: Permission of CEE Advisor. An examination of those societal problems of metropolitan regions most

amenable to engineering solutions. Current urban literature will be reviewed in seminar, and selected topics amenable to engineering analysis will be studied. Written reports will be presented.

**CEGR 3233. Land Development Engineering Studio. (3)** Prerequisite: CEGR 3161. Conduct and prepare a site analysis to determine the best use for raw land. Site analysis includes determination of infrastructure constraints, understanding government regulations and how they apply to the development of the site and preparing a conceptual plan for cost determination and feasibility. Use CAD for preparation of conceptual plans and for presenting ideas.

**CEGR 3235. Land Development Engineering – Advanced Site Analysis. (3)** Prerequisites: CEGR 3153 and CEGR 3161. Site assessment of land to determine infrastructure needs. Design cost effective infrastructure for residential and commercial developments. Analyze government regulations to determine side design criteria. Prepare a design for each of the major infrastructure components (roads, stormwater, sanitary sewer and water). Prepare plans in CAD for presentation of design alternatives and solutions.

**CEGR 3255. Structural Materials I Laboratory. (2) (W)** Prerequisite: MEGR 2141. Pre- or corequisite: MEGR 2144. Composition, properties, and testing of: wood, natural and artificial aggregates, bitumins, portland cement concrete, pozzolans, and structural metals. Experiments in solid mechanics. Data analysis, presentation, and report writing. One and a half hours of lecture and three hours of laboratory per week.

**CEGR 3258. Geotechnical Laboratory. (2) (W)** Pre- or corequisite: CEGR 3278. Test to determine engineering properties of soils; consistency, permeability, shear strength, and consolidation. Data analysis, presentation, and report writing. One and a half hours of lecture and three hours of laboratory per week.

**CEGR 3278. Geotechnical Engineering. (3)**  
Prerequisite: MATH 2171 and MEGR 2144 with grades of C or above. Soil origin, formation, composition, and classification; permeability; seepage; soil mechanics principles, including stresses, shear strength, and consolidation; foundations, retaining structures, and slope stability. Integration of design and technical reporting.

**CEGR 3282. Professional Development. (1)**  
Prerequisite: graduation date before next Fall semester. A series of one-hour lectures by faculty and invited

speakers on basic concepts of professionalism and the nature and purpose of engineering ethics. *Graded on a Pass/No Credit basis.*

**CEGR 3695. Civil Engineering Cooperative Education Seminar. (1)** Required of co-op students following each work semester. Presentation of engineering reports on work done prior semester. *May be repeated for credit; three (3) credit hours maximum.*

**CEGR 3890. Individualized Study. (1-3)** Prerequisite: Permission of CEE Advisor. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. *May be repeated for credit up to 6 credit hours.*

**CEGR 3990. Undergraduate Research in Civil Engineering. (1-4)** Prerequisite: Permission of CEE Advisor. Independent study of a theoretical and/or experimental problem in a specialized area of Civil Engineering. *May be repeated for credit up to 6 credit hours.*

**CEGR 4090. Special Topics in Civil Engineering. (1-4)** Permission of CEE Advisor. Study of specific new areas emerging in the various fields of civil engineering. *May be repeated for credit.*

**CEGR 4108. Finite Element Analysis and Applications. (3)** Prerequisite: CEGR 3122 with grade of C or above. Finite element method and its application to engineering problems. Application of displacement method to plane stress, plane strain, plate bending and axisymmetrical bodies. Topics include: but are not limited to dynamics, fluid mechanics, and structural mechanics.

**CEGR 4121. Prestressed Concrete Design. (3)** Prerequisites: CEGR 3225 and CEGR 4224 or permission of CEE Advisor. Analysis and design of prestressed components and systems, including materials and systems for prestressing, loss of prestress, flexural and shear design in accordance with current building codes, analysis of indeterminate prestressed systems, and control of camber, deflection and cracking.

**CEGR 4123. Bridge Design. (3)** Prerequisites: CEGR 3221 and CEGR 3225, or permission of CEE Advisor. Review of bridge design codes and loadings; superstructure and substructure design of short, intermediate, and long span bridges constructed of steel and concrete; earthquake design; segmental and cable-stayed bridges.

**CEGR 4124. Masonry Design. (3)** Prerequisites: CEGR 3122 with grade of C or above and CEGR 3225.

Introduction of masonry material and engineering and materials properties and testing procedures. Design of reinforced and nonreinforced masonry (clay and concrete) walls, beams, and columns for vertical, wind, and seismic loads. Analysis and design of masonry structures (including torsion) and introduction to computer applications.

**CEGR 4125. Forensic Engineering. (3)** Prerequisite: CEGR 3122 or permission of CEE advisor. Evaluation of structural and construction failures through review of case studies, types and causes of failures, and relevant methods of failure investigation; analysis of failures occurring in a variety of structures, involving a variety of materials, and resulting from a variety of causes; development, expression, and defense of opinions and conclusions, orally and in writing, with an understanding of the impact on the legal process surrounding a failure claim.

**CEGR 4126. Codes, Loads, and Nodes. (3)** Prerequisite: CEGR 3122 with a grade C or above. Building systems and components; code requirements according to the latest ASCE Standard 7 pertaining to buildings and other structures; gravity load analysis including dead, live, roof live and snow loads; lateral load analysis focusing on wind and seismic forces, and applied to the main lateral load resisting systems; software applications using the SAP2000 or similar tool, with 2-D and 3-D models loaded with gravity and lateral loads.

**CEGR 4127. Green Building and Integrative Design. (3)** Prerequisite: CEGR 3122 or permission of instructor. Prepares students to function in multidisciplinary design teams working to produce buildings, sites and coupled environmental-infrastructure systems with resilience and sustainability as design priorities. Focus areas include: civil engineering aspects of energy use, material use, emissions generation, and design strategies for integrated design.

**CEGR 4128. Matrix Methods of Structural Analysis. (3)** Prerequisite: CEGR 3122 or permission of CEE Advisor. Derivation of the basic equations governing linear structural systems. Application of stiffness and flexibility methods of trusses and frames. Solution techniques utilizing digital computer.

**CEGR 4141. Process Engineering. (3)** Prerequisite: CEGR 3141 or permission of CEE Advisor. Applications of material and energy balance principles to the study of chemical, biological, and environmental engineering processes. Overview of applied biotechnology, engineering thermodynamics, and kinetics.

**CEGR 4142. Water Treatment Engineering. (3)**

Prerequisite: CEGR 3141 or permission of CEE Advisor. Analysis and design of water and wastewater treatment processes including physical, chemical and biological treatment. Computer-aided design of treatment systems.

**CEGR 4143. Solid Waste Management. (3)**

Prerequisite: CEGR 3141 or permission of CEE Advisor. Solid waste management, sources, generation rates, processing and handling, disposal, recycling, landfill closures, and remedial actions for abandoned waste sites.

**CEGR 4144. Engineering Hydrology. (3)**

Prerequisite: CEGR 3143. The quantitative study of the various components of the water cycle, including precipitation, runoff, ground water flow, evaporation and transpiration, stream flow. Hydrograph analysis, flood routing, frequency and duration, reservoir design, computer applications.

**CEGR 4145. Groundwater Resources Engineering. (3)**

Prerequisite: CEGR 3143. Overview of hydrological cycle and principles of saturated and unsaturated subsurface flow. Aquifer types and well hydraulics. Field methods for evaluating hydraulic conductivity. Introduction to contaminant fate and transport. Applications of groundwater modeling.

**CEGR 4146. Advanced Engineering Hydraulics. (3)**

Prerequisite: CEGR 3143 or permission of CEE Advisor. Problems of liquids as applied in civil engineering; open channel flow; dams and spillways; water power; river flow and backwater curves; pipe networks, fire flow, sewage collection, groundwater, computer applications.

**CEGR 4147. Stormwater Management. (3)**

Prerequisites: CEGR 3141 and CEGR 3143. Introduction to the impacts and water quality parameters due to urbanization. Develop a numerical model to analyze water stormwater impacts and evaluate different mitigation methods. Understand and utilize the guiding principles of low impact design (LID) and evaluate the available BMPs and understand their limitations.

**CEGR 4148. Open Channel Hydraulics. (3)**

Prerequisite: CEGR 3143 or equivalent. A rigorous examination of the concepts of energy, momentum, and friction as they relate to free-surface flow in engineered and natural channels. Topics include: uniform flow; normal, alternate, and conjugate depths; gradually and rapidly varied flows; flood routing; analysis and design of hydraulic structures; and computer modeling of channel hydraulics using HEC-RAS.

**CEGR 4161. Advanced Traffic Engineering. (3)**

Prerequisite: CEGR 3161 or permission of CEE Advisor. Analysis of basic characteristics of drivers, vehicles, and roadway that affect the performance of road systems. Stream flow elements, volume, density, speed. Techniques of traffic engineering measurements, investigations and data analysis, capacity analysis. Intersections, accidents, parking.

**CEGR 4162. Transportation Planning. (3)**

Prerequisite: CEGR 3161. Urban transportation; travel characteristics of urban transportation systems; analysis of transportation-oriented studies; analytic methods of traffic generation, distribution, modal split, and assignment; traffic flow theory.

**CEGR 4171. Urban Public Transportation. (3)**

Prerequisite: CEGR 3161 or permission of CEE Advisor. Planning, design, and operation of bus, rail, and other public modes. Relationship between particular modes and characteristics of urban areas. Funding, security and other administrative issues.

**CEGR 4181. Human Factors in Traffic Engineering. (3)**

Prerequisite: CEGR 3161 or permission of CEE Advisor. Study of the driver's and pedestrian's relationship with the traffic system, including roadway, vehicle, and environment. Consideration of the driving task, driver and pedestrian characteristics, performance and limitations with regard to traffic facility design and operation.

**CEGR 4182. Transportation Environmental Assessment. (3)**

Prerequisites: Senior standing and permission of CEE Advisor. A study of the environmental impact analysis and assessment procedures for transportation improvements. Route location decisions. Noise, air quality, socio-economic, and other impacts.

**CEGR 4183. Traffic Engineering Studies. (3)**

Prerequisite: STAT 3128. Introduction to the traffic engineering studies most used by traffic engineers, including data collection techniques, statistical analysis procedures, report writing and presentation. One hour of lecture and three hours of laboratory per week.

**CEGR 4184. Highway Safety. (3)**

Prerequisite: CEGR 3161 and STAT 3128. Engineering responses at the state and local levels to the problem of highway safety. Extent of the highway safety problem, elements of traffic accidents, common accident countermeasures, collection and analysis of accident data, evaluation of safety-related projects and programs, and litigation issues.

**CEGR 4185. Geometric Design of Highways. (3)**  
Prerequisite: CEGR 3153 and CEGR 3161. Theory and practice of geometric design of highways including intersections, interchanges, parking and drainage facilities. Driver ability, vehicle performance, safety and economics are considered. Two hours of lecture and three laboratory hours per week.

**CEGR 4222. Structural Steel Design II. (3)**  
Prerequisite: CEGR 3122 with grade of C or above and CEGR 3221. Analysis and design of structural steel components and systems with emphasis on theories necessary for a thorough understanding of the design of complete structures. Compression members affected by local buckling, continuous beams, and beam columns are covered. Welded and bolted connections. Current AISC Specifications used.

**CEGR 4223. Timber Design. (3)** Prerequisites: CEGR 3122 or permission of instructor. Principles of timber design. Design of simple timber structures subjected to gravity loads and lateral forces. Computation of design loads; formulation of structural systems; design/analyze structural components and connections; structural system analysis of timber structures.

**CEGR 4224. Advanced Structural Analysis. (3)**  
Prerequisite: CEGR 3122 with grade of C or above. A continuation of CEGR 3122. Methods to determine deflections in structural members, including moment area, conjugate beam, virtual work, and matrix stiffness methods. Project to compare analysis techniques and introduce use of structural analysis computer programs.

**CEGR 4226. Reinforced Concrete Design II. (3)**  
Prerequisite: CEGR 3122 with grade of C or above and CEGR 3225. Analysis and design of reinforced concrete components and systems with emphasis on the fundamental theories necessary for a thorough understanding of concrete structures. Concentrically loaded slender columns, slender columns under compression plus bending. Wall footings and column footings. Analysis of continuous beams and frames. Total design project involving the analysis and design of a concrete structure. Current ACI Specifications used.

**CEGR 4235. Industrial Pollution Control. (3)**  
Prerequisite: Permission of department. Source and characterization of industrial wastewaters, fundamentals of chemical and physical treatment processes, biological treatment technologies, waste minimization and reduction technologies, and sludge handling and toxicity reduction. Implementation of field or laboratory treatability study.

**CEGR 4241. Chemical Processes in Water and Wastewater Treatment. (3)** Prerequisites: CHEM 1251 and CEGR 3141, or permission of CEE Advisor. Chemical principles involved in the treatment of water and wastewaters; principles of chemical equilibrium relevant to natural water systems; the nature and effect of chemical interactions of domestic and industrial waste effluents on natural water systems.

**CEGR 4242. Wastewater Treatment Design. (3)**  
Prerequisite: CEGR 3141 or permission of department. Analysis and design of wastewater treatment processes. Regulatory requirements, water quality testing, pretreatment, primary treatment, biological processes, nutrient removal, disinfection and tertiary/advanced processes.

**CEGR 4246. Energy and the Environment. (3)**  
Prerequisite: CEGR 3141 or permission of department. A quantitative survey of the sources and uses of energy and an analysis of their economic, environmental, and social impacts to society.

**CEGR 4247. Sustainability. (3)** Prerequisite: CEGR 3141. Focuses on sustainability as it applies to civil engineering, including land development choices, infrastructure planning, material selection and disposal, energy sources, and water supply and treatment. Methods of assessing sustainability and incorporating sustainable features in design are reviewed.

**CEGR 4262. Traffic Engineering. (3)** Prerequisite: CEGR 3161 or permission of CEE Advisor. Operation and management of street and highway systems. Traffic control systems, traffic flow theory, and highway capacity. Evaluation of traffic engineering alternatives and the conduct of traffic engineering studies.

**CEGR 4264. Landfill Design and Site Remediation. (3)** Prerequisites: CEGR 3258, CEGR 3278, and permission of department. Principles of waste disposal and sanitary landfill siting including design, construction, operation and maintenance. Site assessment of underground storage tank leaks; site remediation, and clean up technologies using choice and economic analysis and computer applications.

**CEGR 4270. Earth Pressures and Retaining Structures. (3)** Prerequisites: CEGR 3122 and 3278 or permission of CEE Advisor. Earth pressure theories, effects of wall friction and external loads (including earthquake); design of rigid retaining walls (including structural details); sheetpile wall design; soil reinforcement systems for retaining structures; computer applications.

**CEGR 4271. Pavement Design. (3)** Prerequisites: CEGR 3161 and 3278, or permission of CEE Advisor. Pavement design concepts and considerations; engineering properties of pavement materials, including soils, bases, asphalt concrete, and portland cement concrete; design of flexible and rigid pavements including shoulders and drainage; computer applications for pavement analysis and design.

**CEGR 4272. Design with Geosynthetics. (3)** Prerequisites: CEGR 3258, CEGR 3278, and permission of department. Pre- or corequisite: CEGR 4278. Introduction to geosynthetic materials, properties, laboratory test procedures, and functions; geosynthetic design methods used for geotechnical, transportation hydraulic, and geo-environmental applications (roadways, walls, slopes, foundation soils, landfills, and dams); the incorporation of geosynthetics for soil reinforcement, separation, filtration, drainage and containment.

**CEGR 4273. Engineering Ground Improvement. (3)** Prerequisites: CEGR 3278 and CEGR 3258. Methods of soil and site improvement; design techniques for dewatering systems: ground improvement techniques including: compaction, preloading, vertical drains, admixtures and chemical stabilization of soils, grouting, reinforced earth, in-situ densification, stone columns, slurry trenches, geopiers, and relevant uses of geotextiles. Design considerations and construction techniques for each system are described.

**CEGR 4276. Natural Hazards. (3)** Prerequisites: CEGR 3122, CEGR 3141, CEGR 3143, CEGR 3161, CEGR 3225, and CEGR 3278. Natural hazards dealing with the earth natural processes such as earthquakes, volcanoes, flooding, landslides, and severe weather events are covered. The basic understanding of the different natural hazard processes and mechanisms are presented within the context of the earth's internal and external energies. The course also provides students with a solid understanding of risk as it relates to the potential consequences and impacts to human population and the built environment. This initial part of the course forms the foundation for the second part of the course which includes presentation of the basic principles of risk management of natural hazards within the context of civil and environmental engineering. The final portion of the course covers risk mitigation strategies which are discussed within the challenging context that includes a rapid ongoing population growth and the constantly changing land use which affects societal levels of risk acceptance from natural hazards.

**CEGR 4278. Geotechnical Engineering II. (3)** Prerequisite: CEGR 3278 or permission of CEE Advisor.

Design of shallow and deep foundations, including structural considerations; lateral earth pressure theories; design of rigid and flexible earth retaining structures; advanced aspects of slope stability analysis; and computer applications.

**CEGR 4892. Individualized Study and Projects. (1-6)** Prerequisite: Permission of CEE Advisor. Individual investigation and exposition of results. *May be repeated for credit.*

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## Chemistry (CHEM)

*Separate lecture and laboratory sections -- Although the laboratory and lecture sections of CHEM 1111, CHEM 1112, CHEM 1203, CHEM 1204, CHEM 1251, CHEM 1252, CHEM 2131, and CHEM 2132 are taught as separate courses, it is strongly recommended that students take the appropriate laboratory concurrently with the lecture. Students with severe scheduling problems or students with course programs that do not require the laboratory may take the lecture without the laboratory. Students who withdraw from a lecture course will automatically be withdrawn from the corresponding laboratory. Student wishing to withdraw from CHEM 1251 or CHEM 1252 lecture but retain the corequisite lab may be allowed to do so if the following conditions are met: (1) the student must make a formal written request to the lecture instructor on the "Request to Retain Corequisite Chemistry Laboratory Form" no later than seven calendar days before the deadline to withdraw from a course with a "W" grade; and (2) the lecture instructor must determine that the student has actively participated in the course up to the due date for submitting such a request. Decisions will be made during the week prior to the deadline for withdrawing from a course. The decision of the instructor is final. Students using CHEM 1111 and CHEM 1112, CHEM 1203 and CHEM 1204, or CHEM 1251 and CHEM 1252 to satisfy the General Education requirements for the B.A. and B.S. degree must also take the appropriate associated laboratory courses (e.g., CHEM 1111L, CHEM 1203L, or CHEM 1251L).*

**CHEM 1111. Chemistry in Today's Society. (3)** For students not majoring in a Physical or Biological Science, Engineering, or science-oriented pre-professional program. The role of chemistry in society and the impact of chemistry on society. An introduction to the chemical concepts needed to understand many of the numerous scientific problems confronting society today. Three lecture hours and one Problem Session hour per week. Credit will be given for only one course: CHEM 1111, CHEM 1203, or CHEM 1251.

**CHEM 1111L. Laboratory in Chemistry. (1)** Pre- or corequisite: CHEM 1111. Laboratory exercises to demonstrate what chemists do, techniques used in the laboratory, and the limitations inherent in any laboratory experiment. One three-hour laboratory per week. Credit will be given for only one course: CHEM 1111L, CHEM 1203L, or CHEM 1251L.

**CHEM 1112. Chemistry in Today's Society. (3)** Prerequisite: CHEM 1111. Continuation of CHEM 1111. Does not qualify as a prerequisite for any other chemistry course. Three lecture hours and one Problem Session hour per week. Credit will be given for only one course: CHEM 1112, CHEM 1204 or CHEM 1252.

**CHEM 1112L. Laboratory in Chemistry. (1)** Prerequisite: CHEM 1111 and CHEM 1111L. Pre- or corequisite: CHEM 1112. Continuation of CHEM 1111L. One three-hour laboratory per week. Credit will be given for only one course: CHEM 1112L, CHEM 1204L, or CHEM 1252L.

**CHEM 1200. Fundamentals of Chemistry. (3)** Primarily for students with little or no chemistry background who intend to take CHEM 1251. Introduction to the basic concepts, problem solving skills, and language of chemistry. Develops relationships between chemical formulas and equations, and explores calculations dependent upon these. Students who already have credit for CHEM 1251 with grade of C or above may not take CHEM 1200 for credit. CHEM 1200 will not fulfill chemistry degree requirements.

**CHEM 1203. Introduction to General, Organic, and Biochemistry I. (3)** Prerequisite: Pre-Nursing major. Qualifies as a prerequisite only for CHEM 1204. Fundamentals of chemistry and selected topics from inorganic chemistry. Three lecture hours and one Problem Session hour per week. Credit will be given for only one course: CHEM 1111, CHEM 1203, or CHEM 1251.

**CHEM 1203L. Introduction to General, Organic, and Biochemistry I Laboratory. (1)** Prerequisite: Pre-Nursing major. Pre- or corequisite: CHEM 1203. Laboratory investigations into the nature of inorganic compounds. One three-hour laboratory per week. Credit will be given for only one course: CHEM 1111L, CHEM 1203L, or CHEM 1251L.

**CHEM 1204. Introduction to General, Organic, and Biochemistry II. (3)** Prerequisites: CHEM 1203 with grade of C or above; Pre-Nursing major. Selected topics from organic and biochemistry. Does not qualify as a prerequisite of any other chemistry course. Three lecture hours and one Problem Session hour per week.

Credit will be given for only one course: CHEM 1112, CHEM 1204, or CHEM 1252.

**CHEM 1204L. Introduction to General, Organic, and Biochemistry II Laboratory. (1)** Prerequisites: CHEM 1203 and CHEM 1203L with grades of C or above; Pre-Nursing major. Pre- or corequisite: CHEM 1204. Laboratory investigations into the nature of organic and biochemical compounds. One three-hour laboratory per week. Credit will be given for only one course: CHEM 1112L, CHEM 1204L, or CHEM 1252L.

**CHEM 1251. General Chemistry I. (3)** Prerequisite: MATH 1100 with grade of C or above (or equivalent test score) or CHEM 1200 (which is recommended for students who have not had chemistry in high school) with grade of C or above. A principles-oriented course for science and engineering majors. Fundamental principles and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Topics include: measurements, chemical nomenclature, reactions and stoichiometry, thermochemistry, atomic structure, periodicity, bonding, and molecular structure. Three lecture hours and one Problem Session hour per week. (Students may attempt CHEM 1251 a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade. Credit will be given for only one course: CHEM 1111, CHEM 1203, or CHEM 1251.)

**CHEM 1251L. General Chemistry I Laboratory. (1)** Pre- or corequisite: CHEM 1251. Experimental investigations involving the fundamental principles and laws of chemistry. One three-hour laboratory per week. (Students may attempt CHEM 1251L a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade. Credit will be given for only one course: CHEM 1111L, CHEM 1203L, or CHEM 1251L.)

**CHEM 1252. General Chemistry II. (3)** Prerequisite: CHEM 1251 with grade of C or above. Continuation of CHEM 1251. Topics include: gas laws, liquids and solids, solutions, chemical kinetics, chemical equilibrium, thermodynamics, and electrochemistry. Three lecture hours and one Problem Session hour per week. (Students may attempt CHEM 1252 a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade. Credit will be given for only one course: CHEM 1112, CHEM 1204, or CHEM 1252.)

**CHEM 1252L. General Chemistry II Laboratory. (1)** Prerequisites: CHEM 1251 and 1251L. Pre- or corequisite: CHEM 1252. Continuation of CHEM 1251L. One three-hour laboratory per week. (Students

may attempt CHEM 1252L a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade. Credit will be given for only one course: CHEM 1112L, CHEM 1204L, or CHEM 1252L.)

**CHEM 1253L. Introduction to Modern Laboratory Methods. (1)** Pre- or corequisite: CHEM 1252. For students planning to take additional chemistry courses; can be substituted for the CHEM 1252L requirement for all degrees in Chemistry. Open-ended studies on topics compatible with CHEM 1252 lecture materials. A quasi-research approach is used, involving modern instrumentation extensively. The background needed to utilize microcomputers in data acquisition and data reduction is presented. One three-hour laboratory per week.

**CHEM 2125. Inorganic Chemistry. (3)** Prerequisite: CHEM 1252 with grade of C or above. Descriptive inorganic chemistry including acid-base and nonaqueous solvent concepts.

**CHEM 2130. Survey of Organic Chemistry. (3)** Prerequisite: CHEM 1251 and CHEM 1252 with grades of C or above. A survey of organic chemistry, including aldehydes, ketones, amines, amides and carboxylic acids, designed to meet the needs of B.A. in Biology majors.

**CHEM 2131. Organic Chemistry I. (3)** Prerequisite: CHEM 1251 and CHEM 1252 with grades of C or above. Descriptive principles and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. (Students may attempt CHEM 2131 a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade.)

**CHEM 2131L. Organic Chemistry I Laboratory. (1)** Prerequisites: CHEM 1251, CHEM 1251L, CHEM 1252, and CHEM 1252L with grades of C or above. Pre- or corequisite: CHEM 2131 or CHEM 2130 with grade of C or above. Laboratory investigations into the physical and chemical properties of organic compounds. One laboratory period of three hours per week. (Students may attempt CHEM 2131L a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade.)

**CHEM 2132. Organic Chemistry II. (3)** Prerequisite: CHEM 2131 with grade of C or above. Continuation of CHEM 2131. Three lecture hours and one Problem Session hour per week. (Students may attempt CHEM 2132 a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an

attempt as does receiving any letter grade.)

**CHEM 2132L. Organic Chemistry II Laboratory. (1)** Prerequisite: CHEM 2131L with grade of C or above. Pre- or corequisite: CHEM 2132. Continuation of CHEM 2131L. One laboratory period of three hours per week. (Students may attempt CHEM 2132L a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt as does receiving any letter grade.)

**CHEM 2136L. Organic Chemistry Laboratory. (1)** Pre- or corequisite: CHEM 2132. Laboratory investigation involving a research-type project in lieu of CHEM 2132L. Available only upon departmental invitation.

**CHEM 2141. Survey of Physical Chemistry. (3)** Prerequisites: CHEM 1252 and 1252L, each with grades of C or above; MATH 1120 or one semester of calculus (high school or above); and PHYS 1101 or one semester of physics (high school or above). A course designed for students in the life sciences or others desiring a one-semester survey of the physical aspects of chemistry. Application of thermodynamics to chemical reactions, energy transfer processes, and chemical and physical equilibria; the study of reaction rates and mechanisms; structure of gases, liquids, and solids; molecular structure and spectroscopy.

**CHEM 3090. Special Topics in Chemistry. (1-4)** Prerequisite: Permission of department. Topics chosen from analytical, biochemistry, inorganic, organic, and physical chemistry. Lecture and/or laboratory hours will vary with the nature of the course taught. *May be repeated for credit.*

**CHEM 3111. Quantitative Analysis. (4)** Prerequisites: CHEM 1252 and CHEM 1252L with grades of C or above. Introduction to quantitative and analytical chemistry. Principles of equilibrium, classical, and simple instrumental approaches are considered. Three lecture hours, one Problem Session hour, and one laboratory period of three hours each week. (Students may attempt CHEM 3111 a total of three times. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade.)

**CHEM 3112. Modern Separation Techniques. (4)** Prerequisites: CHEM 2131, CHEM 2131L, and CHEM 3111 with grades of C or above. A theoretical and application course in modern separation techniques with emphasis on liquid and gas chromatography. Two lecture hours and two laboratory periods of three hours each week.

**CHEM 3113. Survey of Instrumental Methods of**

**Analysis. (4)** Prerequisites: CHEM 3111 with grade of C or above. Methods of instrumental analysis with emphasis on sample handling, instrument parameters, data handling, and trouble-shooting in various areas that include Potentiometry, Spectroscopy, Mass Spectrometry, and Chromatography. Either CHEM 3113 or CHEM 3112, but not both, may be used to meet requirements for the B.A. degree. Credit will not be given for both CHEM 3113 and CHEM 4111. Two lecture hours and two three-hour laboratory periods per week.

**CHEM 3141. Physical Chemistry I. (3)** Prerequisites: CHEM 1252 and CHEM 1252L, each with grade of C or above; MATH 1241 and MATH 1242; PHYS 2102 and PHYS 2102L. Pre- or corequisite: At least one of the following: MATH 2241, MATH 2242, MATH 2164, MATH 2171, STAT 3128, or a department-approved mathematics course. Quantum chemistry, atomic and molecular structure, spectroscopy.

**CHEM 3141L. Physical Chemistry I Laboratory. (1)** Pre- or corequisite: CHEM 3141. Experiments in laser spectroscopy, quantum mechanics, kinetics, and thermodynamics. One laboratory period of three hours per week.

**CHEM 3142. Physical Chemistry II. (3)** Prerequisites: CHEM 1252, CHEM 1252L, and CHEM 3141, each with grade of C or above; MATH 1241 and MATH 1242; PHYS 2102 and PHYS 2102L; or permission of instructor. Pre- or corequisite: At least one of the following: MATH 2241, MATH 2242, MATH 2164, MATH 2171, STAT 3128, or a department-approved mathematics course. Kinetic theory of gases, statistical and classical thermodynamics, kinetics.

**CHEM 3142L. Physical Chemistry II Laboratory. (1)** Prerequisite: CHEM 3141L with grade of C or above. Pre- or corequisite: CHEM 3141 or CHEM 3142. Continuation of CHEM 3141L. One laboratory period of three hours per week.

**CHEM 3197. Internship in Community Education and Service. (1-3)** Prerequisites: Junior standing, acceptance into the program, and approval of department. A project-oriented, service learning internship with a cooperating community organization. (Credit toward the B.A. and B.S. degrees in Chemistry will not be given.) *May be repeated for credit with permission of department. Graded on a Pass/No Credit basis.*

**CHEM 3500. Chemistry Cooperative Education and 49ership Experience. (0)** Prerequisites: Junior standing, chemistry through CHEM 2132, and acceptance into the Experiential Learning Program by the University Career Center. Enrollment in this course

is required for Chemistry majors during each semester or summer when they are working on a co-op or 49ership/service 49ership assignment. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**CHEM 3695. Chemistry Seminar. (1) (W)** Introduction to typical search methods, including computer searching, for the chemical reference works and chemical literature. Use of these search techniques for background development. Writing short papers on assigned topics in journal format. One three-hour laboratory session per week.

**CHEM 4090. Special Topics in Chemistry. (1-4)** Prerequisite: Permission of instructor. Selected topics in chemistry. Lecture and/or laboratory hours vary with the nature of the course taught. *May be repeated for credit.*

**CHEM 4095. Topics for Teachers. (1-4)** Prerequisite: Permission of instructor. Selected topics in chemical education. Lecture and/or laboratory hours vary with the nature of the course taught. *May be repeated for credit.*

**CHEM 4111. Instrumental Analysis. (4)** Prerequisites: CHEM 3111, CHEM 3141, and CHEM 3141L with grades of C or above. Selected modern instrumental methods of analysis, including theory and practice, with considerable attention given to the instrument and elementary electronics involved in the techniques. Two lecture hours and six hours of lab per week.

**CHEM 4121. Advanced Inorganic Chemistry. (4)** Prerequisites: CHEM 2132 and CHEM 2132L (or CHEM 2136L) with grades of C or above. Pre- or corequisite: CHEM 3141. A review of atomic structure and bonding, a survey of the synthesis, structure, and reactivity of the elements and their most important compounds, a discussion of key industrial processes dealing with the preparation of inorganic compounds, and an overview of coordination and organometallic chemistry. Laboratory work involves inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week.

**CHEM 4133. Methods of Organic Structure**

**Determination. (2)** Prerequisites: CHEM 2132 and CHEM 2132L with grades of C or above. Study and application of modern techniques, primarily spectroscopy, to determine the structure of organic molecules. One hour of lecture and one laboratory period of three hours each week.

**CHEM 4134. Organic Reaction Mechanisms. (2)** Prerequisites: CHEM 2132 and CHEM 2132L, each with grade of C or above. Mechanistic and theoretical topics which are beyond the scope of CHEM 2131 and CHEM 2132, including orbital symmetry control of organic reactions, the Hammett Equation and other linear free energy relationships, heterocyclic compounds, polycyclic aromatic compounds, organic photochemistry, carbynes, nitrenes, arynes and other short lived, reactive intermediates.

**CHEM 4135. Concepts and Techniques in Organic Synthesis. (2)** Pre- or corequisite: CHEM 4133. Modern techniques of organic synthesis. Laboratory includes one or more multi-step syntheses of complex molecules. One hour of lecture and one laboratory period of three hours each week.

**CHEM 4165. Principles of Biochemistry I. (3)** Prerequisite: CHEM 2132 with grade of C or above. A study of the structures, properties, and functions of biological molecules, bioenergetics of biological reactions, and enzyme catalysis, with particular emphasis on the underlying chemical principles, including thermodynamics and kinetics.

**CHEM 4165L. Principles of Biochemistry I Laboratory. (1)** Prerequisite: CHEM 2132L with grade of C or above. Pre- or corequisite: CHEM 4165. Physical properties of biological molecules and an introduction to experimental techniques of biochemical research. Eleven four-hour lab periods.

**CHEM 4166. Principles of Biochemistry II. (3)** Prerequisite: CHEM 4165 with grade of C or above. A study of various metabolic pathways and information transfer, including molecular aspects of cell biology and genetics, with particular emphasis on the underlying chemical reactions, including thermodynamics and kinetics.

**CHEM 4167. Structure and Mechanism in Protein Chemistry. (3)** Prerequisites: CHEM 4165; CHEM 4166 or BIOL 4171; or permission of instructor. Examination of structures, properties, and functions of proteins, enzyme catalysis, and bioenergetics, emphasizing underlying mechanistic chemical and biochemical principles.

**CHEM 4171. Biochemical Instrumentation. (4)** Prerequisites: CHEM 3111, CHEM 4165, and CHEM

4165L with grades of C or above, or permission of department. Modern instrumental methods used in biorelated areas such as biochemistry, biotechnology, and medical technology. Theory and practice. Electrochemistry, immunochemistry, spectroscopy, chromatography, sedimentation, and electrophoresis. Two lecture hours and six hours of lab per week.

**CHEM 4175. Physical Biochemistry. (3)** Prerequisites: CHEM 3141, CHEM 4165, CHEM 4165L, and CHEM 4166 with grades of C or above. Colloid systems, equilibria in biological fluids, mass and energy transport in fluids and in association with membranes, energy storage and dissipation with relation to specific chemical bonding, enzyme kinetics.

**CHEM 4185. Chemical Fate of Pollutants. (3)** Prerequisites: Senior or Graduate Standing and CHEM 2132. Chemical reactivity and fate of pollutants (in air, water, soil) in terms of their chemical structure and energetics, mechanisms, structure/energy relationships and their interaction with reactive environmental species including light.

**CHEM 4200. Computational Chemistry. (4)** Prerequisite (BA): CHEM 2125 or CHEM 2141 or permission of instructor. Pre- or corequisite (BS and MS): CHEM 3141 or permission of instructor. Electronic and molecular mechanics-based computational methods, including properties, optimized equilibrium and transition state structures and potential energy surfaces of reactions. Three lecture hours and three hours of laboratory each week. Additional projects required of graduate students.

**CHEM 4695. Chemistry Seminar. (1) (O, W)** Prerequisites: CHEM 3695 and Senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required.

**CHEM 4696. Chemistry Seminar. (1) (O, W)** Prerequisites: CHEM 3695, CHEM 4695, and Senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required.

**CHEM 4900. Directed Undergraduate Research. (1-4)** Prerequisite: Permission of instructor overseeing the research; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Independent study and research in any of these fields of chemistry: organic, physical, analytical, inorganic chemistry or biochemistry. Hours for laboratory and library work to be determined. *May be repeated for credit.*

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## Child and Family Development (CHFD)

**CHFD 2111. Foundations in Child and Family Development. (3)** Prerequisite: Pre-CHFD or CHFD major or minor with GPA of at least 2.5 overall. Focuses on the latest research and practice in the field of early child development. Increases understanding of the basic concepts of development of children from birth through age 8, including developmental theory, milestones, current issues, and practical examples from the early childhood field. Opportunities to study the developmental domains (social, emotional, cognitive, language, physical, and creativity) and apply this knowledge to planning appropriate activities and establishing appropriate expectations for children are provided.

**CHFD 2113. Development: Prenatal to 36 Months. (3)** Prerequisite: Pre-CHFD or CHFD major or minor with GPA of at least 2.5 overall. Focuses on development beginning at conception through 36 months of age. The potential influences of biological, genetic, environmental, and cultural factors on development are explored. Examined within the course are theories and research related to developmental processes. Relationship-based approaches (e.g., Touchpoints) are embedded throughout course content. A field-based clinical assignment of approximately 8 hours is required.

**CHFD 2412. The Practice of Observation, Documentation, and Analysis of Young Children's Behavior. (3)** Pre- or corequisites: CHFD 2111, and Pre-CHFD or CHFD major or minor with GPA of at least 2.5 overall. Effective methods of observation, documentation, and assessment as related to developmental theory for young children, Birth-8, who are culturally, linguistically, and ability-diverse. A field-based clinical assignment of approximately 30 clinical hours is required.

**CHFD 3112. Supporting Diverse Young Learners - Birth through Kindergarten. (3)** Prerequisites: CHFD major or minor with GPA of at least 2.5 overall and 2.75 in the major; CHFD 2111; CHFD 2113; and CHFD 2412. Focuses on the developmental and individual needs of children as related to group settings, curriculum decisions, and the design of early learning environments. Current issues, the developmentally appropriate practice, curriculum models, the role of the caregiver (family and/or teacher), the process of guiding and teaching, and the facilitation of development and learning of young children who are culturally, linguistically, and ability diverse are explored.

**CHFD 3113. Families as the Core of Partnerships. (3)** Prerequisites: CHFD major or minor with GPA of at least 2.5 overall and 2.75 in the major; CHFD 2111; CHFD 2113; and CHFD 2412. Examines diverse family systems and dynamics as related to the developmental process of parenting in adolescence and adulthood. Emphasis on the role of formal and informal support systems, and effective family-professional collaborative partnerships that are family driven.

**CHFD 3114. Responsive Approaches for Infants and Toddlers. (3)** Prerequisites: Admittance to Teacher Education in Child and Family Development, GPA of at least 2.5 overall and 2.75 in the major, CHFD 3112. Examines integrated approaches to supporting infants and toddlers who are culturally, linguistically, and ability diverse with an emphasis on practice in applied settings including all environments that support children's active learning. Provides opportunities to examine relationships that support and facilitate learning. A field-based clinical assignment of approximately 15-20 hours is included.

**CHFD 3115. An Ecological Approach to Learning and Development - Early Childhood to Pre-Adolescence. (3)** Prerequisites: Admittance to Teacher Education in Child and Family Development with GPA of at least 2.5 overall and 2.75 in the major; CHFD 2111; CHFD 2113; and CHFD 2412. Examines learning and development in the context of the child's physical and social environments, including home, neighborhoods, schools, communities, national policies and global influences. Specific attention to the approaches to learning, emotional/social, health/physical, cognitive, and language/communication domains and theories as seen in a multicultural context.

**CHFD 3116. Approaches to Integrated Curriculum for Young Children [3-8]. (3)** Prerequisites: Admittance to Teacher Education in Child and Family Development, GPA of at least 2.5 overall and 2.75 in the major; CHFD 3112; and CHFD 3115. Examines approaches to learning within the context of emotional/social, health and physical, language and communication, and cognitive domains with an emphasis on practice in applied settings. This course provides opportunities to select, modify, present, and extend curriculum for young children who are culturally, linguistically, and ability diverse in a developmental framework.

**CHFD 3118. Approaches to Family Supports and Resources. (3) (W)** Prerequisites: Admittance to Teacher Education; GPA of at least 2.5 overall and 2.75 in the major; and CHFD 3113. Corequisite: CHFD 3416. Examines and applies in-depth research,

theory, and practices to create and implement evidence-based supports that build upon family and child strengths in a variety of home and community settings. Candidates complete a field-based clinical assignment of approximately 20 hours in settings with infants, toddlers, and/or twos, their families, and/or prenatal families who are culturally, linguistically, and ability diverse. Collaboration with families is emphasized.

**CHFD 3412. Internship 1: The Family and the Community (Birth to 3 Years). (3-6)** Prerequisites: Admittance to Teacher Education, GPA of at least 2.5 overall and 2.75 in the major. Pre- or corequisite: CHFD 3113. Explores the influence of family and community on the development of infants and toddlers through field-based experiences. Students complete an intensive internship in settings with children who are culturally, linguistically, and ability diverse. Collaboration with families is emphasized. A field-based clinical assignment of approximately 150 hours is required.

**CHFD 3414. Language, Literacy, and Mathematical Thinking of Young Children: Birth-Kindergarten. (3)** Prerequisites: Admittance to Teacher Education in Child and Family Development; GPA of at least 2.5 overall and 2.75 in the major; and CHFD 3112. Examines the development of language, literacy, and mathematical thinking in young children who are culturally, linguistically, and ability-diverse. Research, current educational practice, and instructional materials and strategies are analyzed. Emphasis is on the design and assessment of integrated listening, speaking, reading, writing, and mathematical activities. A field-based clinical experience of approximately 15-20 hours is included.

**CHFD 3416. Internship: Child and Family Development. (3)** Prerequisites: Admittance to Teacher Education in Child and Family Development; GPA of at least 2.5 overall and 2.75 in the major; and CHFD 3113. Corequisite: CHFD 3118. Intensive work with children and families in home and community settings planned by student and advisor with focus on integration of theory and practice.

**CHFD 3800. Individual Study in Child and Family Development. (1-6)** Prerequisite: Permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. *May be repeated for credit.*

**CHFD 4000. Topics in Child and Family Development. (1-6)** May include classroom and/or clinical experiences in the content area. *May be repeated for credit with change of topic and permission of department.*

**CHFD 4200. Child Life: Supporting Children and Families. (3)** An overview of the child life field. Introduces and examines concepts, principles and applications for the child life profession. Students are introduced to the role of the child life specialist in supporting ill children and their families to promote optimal coping and development. Includes site visits.

**CHFD 4410. Student Teaching/Seminar: B-K Child and Family Development. (15) (O)** Prerequisite: Approval of an Application for Student Teaching. Planned sequence of experiences in the student's area of specialization conducted in an approved setting under the supervision and coordination of a University supervisor and a cooperating teacher. Student must demonstrate the competencies identified for the B-K teaching field. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester.

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## Chinese (CHNS)

**CHNS 1201. Elementary Chinese I. (4)** Fundamentals of the Chinese language, including speaking, listening comprehension, reading, and writing.

**CHNS 1202. Elementary Chinese II. (4)** Prerequisite: CHNS 1201 or permission of department. Fundamentals of the Chinese language, including speaking, listening comprehension, reading, and writing.

**CHNS 2201. Intermediate Chinese I. (4)** Prerequisite: CHNS 1202 or permission of department. Review of grammar, with conversation and composition.

**CHNS 2202. Intermediate Chinese II. (4)** Prerequisite: CHNS 2201 or permission of department. Continued review of grammar, conversation, and composition.

**CHNS 3050. Topics in Chinese. (3) (W)** *May be repeated for credit with change of topic.*

**CHNS 3051. Topics in Chinese. (1-3)** *May be repeated for credit with change of topic.*

**CHNS 3201. Chinese Grammar and Conversation I. (3)** Prerequisite: CHNS 2202 or permission of department. Review of Chinese grammar and guided conversation on prepared topics. Emphasis on spoken Chinese.

**CHNS 3202. Chinese Grammar and Conversation II. (3)** Prerequisite: CHNS 3201 or permission of

department. Review of Chinese grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

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## Criminal Justice and Criminology (CJUS)

**CJUS 1100. Introduction to Criminal Justice. (3)** *Required course for majors and minors.* Components of the criminal justice system are reviewed and their interrelatedness assessed; law enforcement, corrections and courts discussed; studies of the functions of the system reviewed.

**CJUS 2000. Introduction to Law Enforcement. (3)** Critical examination of policing in terms of the past and present structures, methods, ethics, legal framework, and operations typical of contemporary American law enforcement agencies.

**CJUS 2102. Ethics and the Criminal Justice System. (3)** The study of applied and professional ethics and ethical issues in the administration of justice.

**CJUS 2120. Juvenile Justice. (3)** Intensive analysis of the administration of juvenile justice within the United States. Particular emphasis on decision-making and procedures of police, courts, and correctional agencies for juveniles.

**CJUS 2154. Introduction to Corrections. (3)** An overview of community and institutional corrections in the U.S. such as jails, probation, alternatives to incarceration, correctional institutions, treatment strategies, and parole.

**CJUS 3000. Topics in Criminal Justice. (3)** Prerequisites: CJUS 1100; and Criminal Justice major or minor. Specialized criminal justice topics. *May be repeated for credit.*

**CJUS 3031. Criminal Justice Learning Community I. (3) (W)** Prerequisites: CJUS 1100; and Criminal Justice major, pre-major, or minor. First course in the year-long sequence Learning Community for Criminal Justice Transfer Students. Designed to introduce transfer students to criminal justice and expose them to the discipline with an emphasis in writing, including exploration of academic and social culture at the University and within the discipline.

**CJUS 3032. Criminal Justice Learning Community II. (3) (O)** Prerequisites: CJUS 1100; CJUS 3031; and Criminal Justice major, pre-major, or minor. Second course in the year-long sequence Learning Community for Criminal Justice Transfer Students, focuses on

career and job seeking skills, including preparation for work experience and community involvement.

**CJUS 3100. Criminal Justice Theory. (3)** Prerequisites: CJUS 1100; Criminal Justice major or minor; and Junior standing. *Required course for majors and minors.* An overview of the dominant theoretical explanations for crime and deviance. Special attention is given to the empirical research on these theories and their corresponding policy/program recommendations for reducing crime and delinquency in society.

**CJUS 3101. Research Methods in Criminal Justice. (4) (W)** Prerequisites: CJUS 1100, STAT 1222, Criminal Justice major, and Junior standing. *Required course for majors.* Research designs, data collection, and data analysis relevant to criminal justice.

**CJUS 3102. American Criminal Courts. (3)** Prerequisites: CJUS 1100; Criminal Justice major or minor; and Junior standing. Analysis of the court area of criminal justice with emphasis on social science literature concerning prosecutors, defense attorneys, judges, juries, and court reform policies.

**CJUS 3110. Criminal Justice and the Law. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Nature and development of criminal law including the concepts of criminal liability, responsibility, and capacity; comprehensive analysis of the various crimes against persons, property, and morality.

**CJUS 3111. Criminal Procedure. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Examines the rules that govern everyday operation of the criminal justice system from investigation to appeal.

**CJUS 3112. Famous Criminal Trials of the Twentieth Century. (3)** Prerequisites: CJUS 1100; Criminal Justice major or minor; Junior or Senior standing or permission of instructor. The study of American criminal trials from 1900 to the present, with a review of specific cases to determine their effect upon, and reflection of, American society and culture.

**CJUS 3114. Mediation and Conflict Resolution. (3) (O)** Prerequisites: Criminal Justice major or minor; Junior standing; and CJUS 1100 or permission of instructor. Introduction to conflict and dispute resolution, with a specific emphasis on mediation. Course format includes lecture, case studies, and practice mediation role plays with instructor and peer feedback.

**CJUS 3120. The Juvenile Offender. (3)** Prerequisites: Criminal Justice major or minor; and

Junior standing. Measurement of juvenile delinquency, explanations of delinquent behavior, and policies intended to both prevent and respond to delinquent behavior.

**CJUS 3121. Juvenile Law. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Statutory and case law relating to juveniles with special emphasis on the North Carolina Juvenile Code.

**CJUS 3130. The Administration of Criminal Justice. (3) (O, W)** Prerequisites: Criminal Justice major or minor; and Junior standing. Examines major organizational theories and administrative functions with direct application to criminal justice agencies.

**CJUS 3132. Interviewing in Criminal Justice. (3) (O)** Prerequisites: Criminal Justice major or minor; and Junior standing. Examines the interpersonal dynamics, theories, empirical research, and legal basis of the investigative interview necessary for the criminal justice professional. Special emphasis will be given to the establishment of rapport, the process of inquiry, the evaluation of response, cultural and age differences, and the need to remain within the legal bounds of the U.S. Constitution.

**CJUS 3141. Law Enforcement Behavioral Systems. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Examines the issues surrounding the individual officer. Such issues include: selection, discretion, ethics, stress, the use of force, and the effects of culture.

**CJUS 3150. Community Corrections. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Structure, functions, and effectiveness of community corrections. Emphasis on the deinstitutionalization movement, community-based treatment centers, community service agencies, work release programs, and current trends in community corrections.

**CJUS 3151. Institutional Corrections. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Structure, functions, and effectiveness of correctional institutions. Emphasis on the history of corrections, classification of offenders, institutionalization, treatment programs, juvenile training schools, and the future of corrections.

**CJUS 3152. Correctional Law. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Development, substance, and application of the law of corrections.

**CJUS 3153. Juvenile Corrections. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing.

Examination of community-based and institutional correctional programs for juveniles and analysis of the effectiveness of these programs.

**CJUS 3160. Domestic Violence. (3)** Prerequisites: CJUS 1100; Criminal Justice major or minor; and Junior standing. Examination of the interpersonal dynamics of abusive relationships and how the cycle of violence perpetuates the home resulting in the physical, psychological and sexual abuse of women and children and how men can become part of the solution to this social cancer.

**CJUS 3200. Security and Loss Prevention. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Overview of the field of private security and loss prevention with emphasis on current legislation, loss prevention, risk management, and security countermeasures.

**CJUS 3210. Problems and Decisions in Criminal Justice. (3) (W)** Prerequisites: Criminal Justice major or minor; Junior standing; and permission of department. Evaluation of criminal justice policy and decision-making.

**CJUS 3220. The Criminal Offender. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Examines the research, theory, and practice of criminal behavior focusing primarily on interaction of the offender with social-environmental factors.

**CJUS 3310. Punishment and Freedom. (3)** Prerequisites: CJUS 1100 with grade of C or above; Criminal Justice major or minor; and Junior standing. Examines the manner in which the notions of freedom and punishment are fundamentally bound to one another, and how, at their intersections, these constructs are the source of considerable speculation regarding consumerism, democracy, capitalism, and ethics.

**CJUS 3400. Criminal Justice Internship. (1-6)** Prerequisites: CJUS 1100; Criminal Justice major or minor; Junior standing; and permission of department and criminal justice agency. Supervised experience in a criminal justice agency. *May be repeated for credit up to a maximum of 12 hours but with no more than six hours counting toward the major.*

**CJUS 3800. Directed Individual Study. (1-4)** Prerequisites: Criminal Justice major or minor; Junior standing; and permission of department. *May be repeated for credit. Graded on a Pass/No Credit basis.*

**CJUS 4000. Topics in Criminal Justice. (1-6)** Prerequisites: Criminal Justice major or minor; and

Junior standing. Specialized topics in criminal justice. *May be repeated for credit.*

**CJUS 4101. Drugs, Crime, and the Criminal Justice System. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Use of drugs and their relationship to crime, including the impact of drugs on the individual and the criminal justice system.

**CJUS 4103. International Criminal Justice. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Examination of the patterns and trends in international crime such as terrorism, transnational organized crime, and trafficking in people, and a review of how the legal traditions of common law, civil law, Islamic law and socialist legal systems are structured and function.

**CJUS 4110. Computer Crime. (3)** Prerequisite: CJUS 1100. The complex nature of computer crime, as well as its significance across a variety of disciplines, including the social sciences and information systems.

**CJUS 4140. Community Oriented Policing and Problem Solving. (3)** Prerequisites: CJUS 1100; CJUS 2000; Criminal Justice major or minor; and Junior standing. Designed to help students learn, in a practical hands on way, about community policing concepts, problems solving tools and resources, and crime prevention strategies that are currently used by law enforcement and community leaders.

**CJUS 4160. Victims and the Criminal Justice System. (3) (O)** Prerequisites: Criminal Justice major or minor; and Junior standing. Relationship between victims of crime and the criminal justice system. Specific topics include: an analysis of the characteristics of crime victims, victim reporting and non-reporting patterns, treatment of victims by the various segments of the criminal justice system, victim assistance programs, and the issue of compensation and/or restitution for victims of crime.

**CJUS 4161. Violence and the Violent Offender. (3)** Prerequisites: Criminal Justice major or minor; and Junior standing. Issues surrounding violence in today's society and their impact on offenders involved in homicide, child and domestic abuse, and other forms of violence. Examination of myths about violence, victim-offender characteristics and relationships, and theories of violence.

**CJUS 4162. Seminar on Sexual Assault. (3) (O)** Prerequisites: Criminal Justice major or minor; and Junior standing. A comprehensive and systematic critical examination of sexual exploitation in the United States. Topics may include historical and legal perspectives, theories of causation, and practical policy

implications in the areas of rape, child sexual abuse, and incest, among others.

**CJUS 4210. Gender, Race, and Justice. (3) (O)** Prerequisites: Criminal Justice major or minor; Junior standing; and CJUS 1100 or permission of instructor. Designed to examine the topics of femininities and masculinities and their influence on participants in the criminal justice system. Specific Topics include: the notion of gender and offending, women and men as victims of violence and as professionals within the criminal justice system.

**CJUS 4220. Evidence. (3) (O, W)** Prerequisites: Criminal Justice major or minor; and Junior standing. A critical examination of the use of evidence within the criminal courtroom. Emphasis placed on the rules of courtroom evidence with particular attention to the proper search and seizure of evidence.

**CJUS 4400. Research Practicum. (3)** Prerequisites: CJUS 3100; CJUS 3101; Criminal Justice major or minor; and Junior standing. Development, analysis, and presentation of independent research under the supervision of a faculty member. Graduate students are encouraged to register for CJUS 6800.

**CJUS 4700. Honors Capstone Project in Criminal Justice. (3)** Prerequisites: Criminal Justice major or minor; Junior standing; permission of instructor; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Required of all Honors students.

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## Construction Management (CMET)

**CMET 1680. Professional Development I: Construction Safety. (1)** Prerequisite: Open to freshman level Civil Engineering Technology and Construction Management majors. Professional seminar laboratory study of OSHA regulations pertaining to construction safety. Course includes presentations by industry professionals. Three hours per week.

**CMET 2680. Professional Development II: Sustainable Engineering and Construction. (1)** Professional seminar study of introductory concepts of sustainability and their application to engineering and construction. Course includes presentations by industry professionals. Three hours per week.

**CMET 3123. Cost Estimating. (3)** Prerequisites: ETCE 2105 and CMET 3224. Methods used to prepare construction cost estimates, engineer production and cost, and determine labor and equipment resources.

**CMET 3224. Construction Project Administration. (3)** Prerequisite: Junior standing or AAS degree. A study of the project management processes used in the design and construction of civil engineering projects. Topics include: the roles and responsibilities of project participants, project delivery methods, engineering and construction contracts, project control and documentation, and dispute resolution mechanisms.

**CMET 3680. Professional Development III: Professional Ethics. (1)** Prerequisite: CMET 3224. Professional seminar study of ethical issues and the application of professional ethical codes within the AEC industry. Course includes presentations by industry professionals. Three hours per week.

**CMET 4073. Special Topics - Construction Management. (1-4)** Prerequisite: Senior standing and permission of instructor. A study of new and emerging technical topics pertinent to the field of construction management. *May be repeated for credit.*

**CMET 4125. Construction Codes, Documents, and Permits. (2)** Prerequisites: CMET 1680 and CMET 3224. An analysis of technical specifications, construction regulations and permits, procurement documents, and safety programs and plans.

**CMET 4126. Project Scheduling and Control. (3)** Prerequisite: CMET 3224. Methods for planning, scheduling, and controlling construction projects, emphasizing manual and computer based techniques for critical path method scheduling, resource management, construction cost control, and reporting practices.

**CMET 4127. Construction Law and Regulatory Issues. (3)** Examination of the legal problems encountered by architects, engineers, contractors, owners, sureties, and lenders involved in the construction process. Special emphasis on the legal rights and liabilities of the various participants in construction projects. Claims preparation, negotiation, arbitration, and litigation methods of dispute resolution.

**CMET 4129L. Construction Planning Laboratory. (1) (W)** Pre- or corequisite: CMET 4126. Methods for planning construction operations and projects for directed projects with an emphasis on developing schedules and cost estimates to reflect the plan. Three laboratory hours per week.

**CMET 4130. Infrastructure Systems (3)** Prerequisites: CMET 3123 and ETCE 3131. Design of processes for the construction of permanent works applied to airports, roadways, bridges, dams/levees,

water/wastewater facilities, and energy infrastructure; and the design and construction of associated temporary structures.

**CMET 4135. Building Information Modeling. (3)** Prerequisites: ETCE 3271, and ETCE 1104 or ETGR 1104. The creation, management, and application of building information models to the construction, operation, and maintenance of a facility. Focus on 3D and 4D computer models of building components, renderings, animations, and interfacing with analysis tools.

**CMET 4150. Green Building. (3)** Prerequisite: Senior standing. Sustainable design and construction. Topics include: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation in design, and regional priority.

**CMET 4228. Construction Office Operations. (2)** Prerequisite: CMET 3224. A study of management issues encountered in home and job-site office operations. Topics include: insurance and bonds, risk management, cost accounting, and quality management.

**CMET 4272. Capstone Project. (3) (O,W)** Prerequisite: Senior standing in Construction Management and permission of department. Utilization of students' previous coursework to creatively investigate and produce solutions for a comprehensive construction management project.

**CMET 4290. Temporary Structures in Construction. (3)** Prerequisite: ETCE 3163. Temporary structures and used to support construction operations such as concrete formwork, scaffolding systems, shoring systems, cofferdams, underpinning, slurry walls, and construction dewatering systems.

**CMET 4680. Professional Development IV. (1)** Prerequisite: Open to senior level Civil Engineering Technology and Construction Management majors. Seminar discussing professional development issues relating to the civil engineering technology and construction management professions. Course includes presentations by industry professionals.

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## Communication Studies (COMM)

**COMM 1101. Public Speaking. (3) (O)** Prerequisite: Pre-Communication Studies major/minor, English major, Pre-Elementary Education major, Elementary Education major, Pre-Kinesiology major, Athletic Training major, Exercise Science major, or Pre-Public

Health major. For students who want to upgrade their oral communication skills. Opportunity to study theory and practice of public speaking. Special emphasis placed on constructing and delivering speeches.

**COMM 1107. Introduction to Communication Contexts. (3)** A survey of the nature and practice of communication in interpersonal, small group, intercultural, organizational, public relations, and mass communication contexts.

**COMM 2050. Topics in Oral Communication. (3) (O)** Timely and important areas relevant to the study and practice of oral communication. *May be repeated for credit with permission of advisor.*

**COMM 2100. Introduction to Communication Theory. (3)** Prerequisite: Pre-Communication Studies major/minor, Pre-Public Health major, Public Health major, or Software and Information Systems major. Introduces students to traditional and contemporary theories about human communication processes including the nature of theory building, and major theoretical developments within the field of communication. May not be taken more than twice.

**COMM 2101. Introduction to Rhetorical Theory. (3)** Prerequisite: Communication Studies major or minor. Evolution of rhetorical theory from ancient to modern times and examination of major rhetorical theorists. Emphasis on using rhetorical theory to better understand contemporary persuasive messages.

**COMM 2102. Advanced Public Speaking. (3)** Prerequisite: Communication Studies major or minor; COMM 1101 or permission of instructor. Advanced theory and practice of speaking in public. Research, composition, and delivery of various types of speeches and presentations.

**COMM 2103. Argumentation and Debate. (3)** Prerequisite: Communication Studies major or minor. Introduction to the basic theory and skills of argumentation and debate. Assumptions of argumentation, evidence, reasoning, argument construction, cross-examination, refutation, and ethics included.

**COMM 2105. Small Group Communication. (3)** Prerequisite: Communication Studies major or minor, Computer Science major, Software and Information Systems major, Pre-Public Health major, or Public Health major. Principles of discussion and deliberation in small groups. Practice in organizing, leading, and participating in various forms of group communication. Emphasis on problem solving and group management.

**COMM 2107. Interpersonal Communication. (3)** Prerequisite: Communication Studies major or minor, Pre-Elementary Education major, Elementary Education major, Pre-Public Health major, or Public Health major. Study of the dynamics of one-to-one human communication. The relation of language to human communication, perception and reality, self-concept, nonverbal communication codes, development of trust and self-disclosure, and development of positive communication style.

**COMM 2110. Women and the Media. (3)** Cross-listed as WGST 2110. Examination of messages about women as conveyed in contemporary media (magazines, newspapers, videos, the Internet, video games, television, and movies.) The role of gender in the power structures of the media producers is also analyzed.

**COMM 2120. Black Images in the Media in the U.S. (3)** Cross-listed as AFRS 2105. Examination of African American images projected through electronic and print media, historically and currently.

**COMM 2145. Principles of Public Relations. (3)** Prerequisite: Communication Studies major or minor. Pre- or corequisite: JOUR 2100. Familiarize students with basic concepts and principles of public relations within the context of communication theory. Acquaints students with the history, functions, roles, social contexts, tools, techniques, and strategies of the profession.

**COMM 3050. Topics in Communication Studies. (3)** Prerequisite: COMM 1101. Timely and important areas relevant to communication studies. *May be repeated for credit with permission of advisor.*

**COMM 3051. Topics in Health Communication. (3)** Prerequisite: COMM 3115. Timely and important areas relevant to the study of health communication. *May be repeated for credit with permission of advisor.*

**COMM 3052. Topics in Mass Media. (3)** Timely and important areas relevant to the study of the mass media. *May be repeated for credit with permission of advisor.*

**COMM 3054. Topics in Organizational Communication. (3)** Prerequisite: COMM 3141. Timely and important areas relevant to the study of organizational communication. *May be repeated for credit with permission of advisor.*

**COMM 3055. Topics in Public Relations. (3)** Prerequisite: COMM 2145. Timely and important areas relevant to the study of public relations. *May be repeated for credit with permission of advisor.*

**COMM 3056. Topics in Communication Studies. (3) (W)** Timely and important areas relevant to communication studies. *May be repeated for credit with permission of the major advisor.*

**COMM 3057. Topics in Communication Studies. (3) (O, W)** Timely and important areas relevant to communication studies. *May be repeated for credit with permission of the major advisor.*

**COMM 3100. Communication Research Methods. (3) (W)** Prerequisites: Communication Studies major; COMM 2100; and STAT 1220 or STAT 1222. Methods for systematic investigation of communication behavior in all primary communication contexts, including utilization of library materials and quantitative and qualitative techniques for data analysis.

**COMM 3101. Persuasion. (3)** Prerequisites: Communication Studies major and COMM 2101. Emphasis on the theory and practice of persuasion. Topics include: attitude modification, theories of persuasion, source credibility, persuasive strategies, ethics, and audience analysis.

**COMM 3110. Gender and Communication. (3)** Cross-listed as WGST 3110. Examination of the relationship between language and gender. Topics include: how language shapes perceptions of men/women; gender differences in verbal and nonverbal communication; and gendered communication in relationships, friendships, and the workplace.

**COMM 3115. Health Communication. (3)** Prerequisites: COMM 2100 or HLTH 2101; Communication Studies major or minor, or Public Health major or minor. Introduction to human communication in a healthcare context. Issues of social support, patient-health professional/caregiver interaction, organizational culture, planning health promotion campaigns, and cultural conceptions of health and illness.

**COMM 3120. Communication and Mass Media. (3)** Prerequisites: COMM 2100 and Communication Studies major or minor. A survey of the function and history of print and electronic media as forms of communication, their influence upon society, and the legal and economic environments in which they operate.

**COMM 3121. Mass Communication and Society. (3)** Examines important issues involving mass communication. Critical study of the effect mass communication exerts on society.

**COMM 3125. New Media for Communications. (3)** Examines the theoretical perspectives and practical skills necessary to create and design content using digital tools. Course covers components of digital media including designing, writing and communication through the web, creating and editing online podcasts and original creation of online digital video.

**COMM 3126. Globalization and Digital Media. (3)** Cross-listed as INTL 3115. An analysis of the role and impact of digital media on globalization. The course considers how the internet and social networks have changed our connection from a physical global society to a virtual culture and explores the ways in which digital communication has fostered the globalization of artistic styles, cultural forms, political relationships and economic transactions.

**COMM 3127. Global Media. (3)** Cross-listed as INTL 3127. The course examines the theories and practices of globalization as related to mediated communication and the operation of global media, its consumption and impact. Specific issues studied include global media conglomeration, global media law, media systems, and international development.

**COMM 3130. Communication and Public Advocacy. (3)** Prerequisites: COMM 2100; and Communication Studies major or minor, or Public Health major. Examination of how symbols are used in public advocacy from both applied and theoretical perspectives with emphasis on rhetorical uses of language and non-verbal symbols in the creation and transmission of public messages.

**COMM 3131. African American Oratory. (3)** Oratory by African Americans using in-depth study of speech texts and video and general rhetorical principles to examine historic as well as lesser-known speeches.

**COMM 3135. Leadership, Communication, and Group Dynamics. (3)** Study of leadership theories, behaviors, and group processes. Emphasis on group dynamics in organizations and the role of the leader. Assessment of leadership style.

**COMM 3136. Leadership, Service, and Ethics. (3)** Leadership issues facing our society, the role of values and ethics in leadership, and servant leadership.

**COMM 3141. Organizational Communication. (3)** Prerequisites: COMM 2100; and Communication Studies major or minor, Public Health major, or Software and Information Systems major. Examines the importance of the operation of communication processes within organizations and between organizations and their environments.

**COMM 3142. Applications in Organizational Communication. (3)** Prerequisite: Communication Studies major; and COMM 3141 or permission of instructor. Application of the principles, theory, and concepts of organizational communication to organizational settings. Explores how organizational theories are realized in everyday organizational life through case studies, interviews, various research methodologies, assessments, and evaluations.

**COMM 3150. Gender, Culture, and Communication. (3)** Cross-listed as ANTH 3160. Addresses cultural experiences of gender through communication; material covered includes cultural constructions of femininity and masculinity, cultural socialization toward gender and sexuality, gendered communication in private and public settings, popular representations of gender and sexuality in U.S. media, and language diversity based upon ethnicity, class, gender, and sexual orientation.

**COMM 3160. Business Communications. (3) (O, W)** Prerequisites: INFO 2130 and Junior standing. The nature and problems of individual, interpersonal and organizational communication in business. Various verbal techniques such as business presentations and writing will be developed and practiced for effective organizational and individual performance.

**COMM 3245. Public Relations Writing. (3)** Prerequisites: Communication Studies major, JOUR 2100, JOUR 2160, and COMM 2145. Instruction and writing practice designed to develop the professional-level writing skills expected of entry-level public relations practitioners. Extensive writing exercises in preparing plans, releases, newsletters, brochures, web pages, media kits and other public relations products. Individual and group projects required.

**COMM 3246. PR Strategy. (3)** Prerequisites: Communication Studies major and COMM 2145. This course focuses on the planning, problem-solving, and management skills required in the contemporary practice of public relations. Students will analyze a variety of public relations models and will learn to develop problem statements, goals, objectives and tactics, identify and research target publics, and evaluate strategic program results.

**COMM 3403. Debate Practicum. (2)** Prerequisites: COMM 2103 or equivalent and permission of instructor. Application of debate principles and practices as a member of UNC Charlotte Debate Team. Research, argument construction and tournament competition required. *May be repeated for credit up to four times.* No more than four hours of COMM 3403 may be used toward requirements for the minor.

**COMM 3880. Independent Study. (1-3)** Prerequisites: COMM 1101, permission of instructor and major advisor. Area of study beyond the scope of current offerings to be devised by student and faculty member. *May be repeated for credit.* Three hours of COMM 3880 may be used toward the minor with prior approval of the department chairperson.

**COMM 3890. Honors Thesis I. (3)** Prerequisite: Permission of instructor. Initiation of independent Honors research, including the preparation and defense of a formal thesis proposal.

**COMM 3891. Honors Thesis II. (3)** Prerequisite: COMM 3890; permission of instructor; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Completion of independent Honors research, including the preparation and defense of a formal Honors thesis.

**COMM 4050. Topics in Communication Studies. (3)** Timely and important areas relevant to communication studies. *May be repeated for credit with permission of advisor.*

**COMM 4101. Media and the Law. (3)** Prerequisites: Communication Studies major, Junior or Senior standing or permission of instructor. Survey of legal rights, restrictions, and ethical considerations in field of communication including the First Amendment, libel, invasion of privacy, obscenity law, regulation of electronic media, relationships between media and judiciary.

**COMM 4102. Federal Interpretation of the First Amendment. (3)** Prerequisite: Junior or Senior standing or permission of instructor. In-depth case analysis of tests determining Constitutional boundaries of expression, including clear and present danger, prior restraints, fighting words/symbolic speech, strict scrutiny, obscenity, indecency.

**COMM 4115. Seminar in Health Communication. (3)** Prerequisites: COMM 3115, Senior standing, and Communication Studies major. Course provides in-depth examination of a major area of health communication utilizing extensive readings, discussion and written work.

**COMM 4141. Advanced Organizational Communication. (3)** Prerequisites: Communication Studies major and COMM 3142. Critical examination of the communication practices of organizations which accomplish such tasks as establishing organizational identification, influencing organizational members, and making decisions. Includes application of research

methods to assess and analyze an organization's communication practices.

**COMM 4145. Communication Campaigns. (3)** Prerequisites: Communication Studies major, COMM 3245, and COMM 3246. Lectures, workshops, and guest speakers provide knowledge to enable students to research, design, implement, and complete public relations projects for community-based, not-for-profit organizations. The course is structured and run in a manner similar to a professional public relations agency with students assuming appropriate agency roles. *May be repeated one time.*

**COMM 4147. International Public Relations. (3)** Prerequisites: Communication Studies major and COMM 2145. Examines the complexities of public relations practice in an international setting. Includes overview of the factors that complicate communication across cultures and borders and an examination of the effect those factors have on public relations practice in specific global regions.

**COMM 4410. Professional Internship. (3 or 6)** Prerequisites: Junior or Senior standing, Communication Studies major/minor or Journalism minor, and 2.0 GPA in all coursework in the major or minor. Students work 8-10 hours per week (total 120 hours per semester) for 3 credit hours, or 16-20 hours (total 240 hours per semester) for 6 credit hours in an approved placement. *May be repeated for credit in a different internship placement with permission of advisor and the Communication Studies Internship Coordinator. Graded on a Pass/No Credit basis.*

**COMM 4445. International Professional Internship. (3 or 6)** Prerequisites: Junior or Senior standing, Communication Studies major, and 2.0 GPA in all coursework in the major. Similar to COMM 4410 (Professional Internship) but internship placements are with organizations reflecting a significant global/international component or focus. As with COMM 4410, students work 8-10 hours per week (total 120 hours per semester) for 3 credit hours, or 16-20 hours (total 240 hours per semester) for 6 credit hours in an approved placement. *May be repeated for credit in a different internship placement with permission of advisor and the Communication Studies Internship Coordinator. Graded on a Pass/No Credit basis.*

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## Urban Youth and Communities (CUYC)

**CUYC 3600. Community Engagement Capstone Seminar. (3) (SL)** Provides a culminating and comprehensive experience for students in the Minor in Urban Youth and Communities. Students synthesize

the interdisciplinary theory and experiential learning around urban youth and education, communities, and social justice into a comprehensive community and school-based project lead by the student using practices of participatory action research.

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## Dance (DANC)

**DANC 1109. Pilates. (2)** Introduction and practice of the Pilates Method of body conditioning and training. *May be repeated for credit.* Three contact hours.

**DANC 1201. Foundations in Dance. (2)** Corequisite: DANC 1280. An introduction to dance as cultural practice, performing art, and interdisciplinary subject. Students are oriented to the practices that constitute the dance discipline. Three contact hours.

**DANC 1209. Ballet for Majors IA. (2)** Prerequisite: Dance major or permission of instructor. Beginning Ballet technique. *May be repeated for credit.* Three contact hours.

**DANC 1210. Ballet for Majors IB. (2)** Prerequisite: Completion of DANC 1209 with grade of C or above, or permission of instructor. Beginning Ballet Technique. Continuation of DANC 1209. *May be repeated for credit.* Three contact hours.

**DANC 1212. Ballet I. (2)** Fundamentals of ballet technique, barre, and floor work. Recommended for non-majors. *May be repeated for credit.* Three contact hours.

**DANC 1213. Ballet II. (2)** Prerequisite: DANC 1212 or permission of instructor. Continuation of DANC 1212. *May be repeated for credit.* Three contact hours.

**DANC 1214. Modern Dance I. (2)** Introduction to elementary modern dance styles. *May be repeated for credit.* Three contact hours.

**DANC 1215. Modern Dance II. (2)** Prerequisite: DANC 1214 or permission of instructor. Continuation of DANC 1214. *May be repeated for credit.* Three contact hours.

**DANC 1217. Modern Dance for Majors IA. (2)** Prerequisite: Dance major or permission of instructor. Beginning Modern dance technique. *May be repeated for credit.* Three contact hours.

**DANC 1218. Modern Dance for Majors IB. (2)** Prerequisite: DANC 1217 with grade of C or above, or permission of instructor. *May be repeated for credit.* Beginning Modern dance technique. Three contact hours.

**DANC 1280. Improvisation. (2)** Corequisite: DANC 1201. Exploring body movement in energy, time, and space to build an awareness of the human body's propensity for movement while developing the discipline required for the study, appreciation, and expression of dance. Three contact hours.

**DANC 2016. Choreographic Analysis. (3) (0)** Prerequisite: Dance major or minor, or permission of instructor. Study of the form and content of choreographic dance works through observation, description, technical analysis, interpretation, and evaluation. Crafting tools and aesthetic communication is examined through daily guided discussion, formal debate, oral project presentation, and writing. Three contact hours.

**DANC 2119. Anatomy for Dancers. (3)** Study and application of basic anatomy and kinesiology principles to dance. Three contact hours.

**DANC 2124. Irish Traditional Dance. (2)** An introduction to Traditional Irish Dance and music. *May be repeated for credit.* Three contact hours.

**DANC 2125. West African Dance. (2)** An introduction to the theory and practice of selected West African traditional dance styles in terms of cultural context, function, and form. *May be repeated for credit.* Three contact hours.

**DANC 2126. Tap Dance. (2)** An introduction to tap dance. *May be repeated for credit.* Three contact hours.

**DANC 2127. Latin Dance Forms. (2)** An introduction to traditional Latin dances such as Salsa, Bachata, Merengue, and Cumbia. *May be repeated for credit.* Three contact hours.

**DANC 2209. Ballet for Majors IIA. (2)** Prerequisite: DANC 1210 with grade of C or above, or permission of instructor. Beginning/Intermediate Ballet technique. *May be repeated for credit.* Three contact hours.

**DANC 2210. Ballet for Majors IIB. (2)** Prerequisite: DANC 2209 or permission of instructor. Beginning/Intermediate Ballet technique. *May be repeated for credit.* Three contact hours.

**DANC 2216. Choreography I. (3)** Prerequisites: DANC 1210, DANC 1217, and DANC 1280, or permission of instructor. Exploration of fundamental elements, concepts, and crafting tools for composing dance. Four contact hours.

**DANC 2217. Modern Dance for Majors IIA. (2)** Prerequisite: DANC 1218 with grade of C or above, or permission of instructor. Intermediate Modern Dance Technique. *May be repeated for credit.* Three contact hours.

**DANC 2218. Modern Dance for Majors IIB. (2)** Prerequisite: DANC 2217 with grade of C or above, or permission of instructor. Beginning/Intermediate Modern dance technique. *May be repeated for credit.* Three contact hours.

**DANC 2222. Ballet III. (2)** Prerequisite: DANC 1213 or permission of instructor. Intermediate ballet, barre, and center-work. *May be repeated for credit.* Three contact hours.

**DANC 2224. Modern Dance III. (2)** Prerequisite: DANC 1215 or permission of instructor. Intermediate modern dance technique. *May be repeated for credit.* Three contact hours.

**DANC 2226. Vintage Jazz Dance. (2)** An introduction to the style and cultural context of this indigenous U.S. dance form that evolved in the first half of the 20<sup>th</sup> century. *May be repeated for credit.* Three contact hours.

**DANC 2227. Contemporary Jazz Dance. (2)** Selected contemporary jazz styles from the 20<sup>th</sup> and 21<sup>st</sup> centuries. Dance majors/minors only; others by permission of instructor. *May be repeated for credit.* Three contact hours.

**DANC 2228. Music and Dance. (2)** Prerequisites: DANC 1201, DANC 1210, DANC 1217, and DANC 1280. Selected music theory fundamentals and materials for dancers that explore the intellectual, affective, and physical relationships of music and dance through the study of the rhythmic structure. Music and dance as cultural forms provide examples and models for study, music creation, and performance. Three contact hours.

**DANC 2251. Lighting Design I. (3)** Cross-listed as THEA 2250. An introduction to lighting design theory and techniques for theatre, dance, and opera.

**DANC 2401. Production Practicum - Dance Running Crew. (1)** Practical application of production work in the areas of scenery, lighting, sound, costuming, properties, and stage management. *May be repeated for credit.*

**DANC 2402. Performance Practicum. (1)** Prerequisite: Audition. Corequisite: Any dance technique course. Technique course must be taken concurrently. Practical application of performance

techniques within a production setting, including auditions, rehearsals and performances. *May be repeated for credit.*

**DANC 2403. Dancing for Choreographers. (2)** Corequisite: any level of technique course (DANC 1209, DANC 1210, DANC 1217, DANC 1218, DANC 2209, DANC 2210, DANC 2217, DANC 2218, DANC 3210, DANC 3218). Experience in rehearsal and performance in conjunction with student choreographers from DANC 3230. *May be repeated for credit.* Four contact hours plus a minimum of 2-3 hours lab time.

**DANC 3100. Pointe. (2)** Corequisite: a Ballet technique course and/or permission of instructor. Beginning Pointe technique. *May be repeated for credit.* Three contact hours.

**DANC 3201. Professional Training Certificate in Dance. (4)** Prerequisite: Audition or permission of department. Both DANC 3201 and DANC 3202 must be taken sequentially during the same academic year. First year of a two-year program of pre-professional technical dance training in ballet, performance experience, and professional dance company observation with the North Carolina Dance Theatre. Emphasis on adagio vocabulary and partnering skills.

**DANC 3202. Professional Training Certificate in Dance. (4)** Prerequisite: DANC 3201 and audition, or permission of department. Both DANC 3201 and DANC 3202 must be taken sequentially during the same academic year. First year of a two-year program of pre-professional technical dance training in ballet, performance experience, and professional dance company observation with the North Carolina Dance Theatre. Emphasis on adagio vocabulary and partnering skills.

**DANC 3210. Ballet for Majors III. (2)** Prerequisite: DANC 2210 with grade of C or above, or permission of instructor. Intermediate / Advanced Ballet technique. *May be repeated for credit.* Three contact hours.

**DANC 3218. Modern Dance for Majors III. (2)** Prerequisite: DANC 2218 with grade of C or above, or permission of instructor. Intermediate/Advanced Modern Dance technique. *May be repeated for credit.* Three contact hours.

**DANC 3221. Dance History I. (3)** Historical and cultural developments of theatrical/concert dance from the Renaissance through the 20<sup>th</sup> century.

**DANC 3222. Dance History II. (3)** Historical and cultural influences affecting the development of concert dance in the Twentieth Century.

**DANC 3227. Ballet Pedagogy. (3)** Prerequisites: DANC 2119 and DANC 2210; Dance major or permission of instructor. Methods and resources in the teaching of ballet techniques for young dancers. How, why, and when to teach the ballet vocabulary. Integration of concepts of anatomy, kinesiology, physics and the laws of motion and musical accompaniment. Three contact hours.

**DANC 3229. Contact Improvisation. (2)** Pre- or corequisite: DANC 1218 or any level of technique course (DANC 1209, DANC 1210, DANC 1217, DANC 1218, DANC 2209, DANC 2210, DANC 2217, DANC 2218, DANC 3210, DANC 3218). Experiential exploration of basic concepts of contact improvisation including falling and rolling to the floor, and partnering skills of weight sharing and lifting. Three contact hours.

**DANC 3230. Choreography II. (3)** Prerequisites: DANC 2216 and DANC 2217. Methods and sources for dance composition, culminating in creative experience. *May be repeated for credit.* Four contact hours plus a minimum of 2-3 hours lab time.

**DANC 4001. Topics in Dance. (1-3)** Special topic in dance. *May be repeated for credit with change in topic.* Two to six contact hours.

**DANC 4110. Communicating Across the Dance Discipline. (3) (W)** Prerequisites: DANC 3221, DANC 3222, Senior standing, and Dance major or minor. Sources from across the dance discipline and related professional communication are used as a basis for research, discussion, writing, and professional presentation.

**DANC 4201. Professional Training Certificate in Dance. (4)** Prerequisites: DANC 3202 and audition. Both DANC 4201 and DANC 4202 must be taken sequentially during the same academic year. Continuation of DANC 3201 and DANC 3202 with emphasis on allegro vocabulary, and technical precision of complex combinations.

**DANC 4202. Professional Training Certificate in Dance. (4)** Prerequisites: DANC 4201 and audition. Both DANC 4201 and DANC 4202 must be taken sequentially during the same academic year. Continuation of DANC 4201 with emphasis on allegro vocabulary, and technical precision of complex combinations.

**DANC 4227. Dance Education Methods I. (3)** Prerequisite: DANC 1201; DANC 1209; DANC 1217; DANC 1280; DANC 2216; DANC 2228; DANC 3221 or DANC 3222; EDUC 1100 or EDUC 2100; SPED 2100;

meet requirements for the Praxis Core Test; Criminal Background Check; and accepted application to the College of Education; or permission of instructor. Corequisite: DANC 4227L. Examination of dance, movement, pedagogic and assessment philosophies, theories and practices toward lesson planning, curriculum development, and classroom management for elementary education.

**DANC 4227L. Elementary Clinical Experience. (1)** Corequisite: DANC 4227. Observation and teaching in an elementary school setting. Application of theories and methodologies introduced in DANC 4227. Four contact hours.

**DANC 4257. Dance Education Methods II. (3)** Prerequisite: DANC 4227 and DANC 4227L, or permission of instructor. Corequisite: DANC 4257L. Skill development in utilization of dance, movement, pedagogic theories and practices, and assessment toward lesson planning, curriculum development, and classroom management for middle school and high school education.

**DANC 4257L. Middle School and High School Clinical Experience. (1)** Corequisite: DANC 4257. Observation and teaching in middle school and high school settings. Application of theories and methodologies introduced in DANC 4257. Four contact hours.

**DANC 4400. Internship in Dance (3-6)** Prerequisite: GPA of at least 2.5, Junior standing, and permission of department chair. Research and/or in-service training for dance majors and minors in cooperating organizations. Specific content is based upon a contract between the students department and professional organization. *Graded on a Pass/No Credit basis.*

**DANC 4467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Dance. (14) (O)** Prerequisites: Approved application for student teaching from the College of Education; Senior standing; completion of professional education requirements and all coursework; GPA of 2.75 or above in all required Concentration in Dance Education courses; grades of C or above in all courses required for the concentration by the Department of Dance and College of Education; and an overall GPA of 2.5 or above. Corequisite: Enrollment only in student teaching; additional classes may not be taken while student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University Supervisor and a Cooperating Teacher in an appropriate grade level and approved school setting in which the student demonstrates the competencies

identified for his/her specific teaching field in alignment with state and national standards.

**DANC 4601. Individual Project. (1-6)** Prerequisite: Permission of department chair. *May be repeated for credit.*

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## Electrical and Computer Engineering (ECGR)

*Courses must be completed to progress within three attempts including withdrawing from the course with a grade of W. Failure to progress in three attempts will result in suspension from the program.*

**ECGR 2103. Computer Utilization in C++. (3)** Introduction to the use of computers and computing methods to solve engineering problems. Structures and object-oriented programming design using C++.

**ECGR 2104. Computer Engineering Programming II. (3)** Prerequisite: ECGR 2103 or equivalent. Advanced topics in C++ such as: pointers, recursion, inheritance, polymorphism, and templates. Introduction to linked data structures and analysis of algorithms.

**ECGR 2111. Network Theory I. (3)** Prerequisites: MATH 1242 and PHYS 2101 both with grades of C or above. Pre- or corequisites: MATH 2171 and PHYS 2102, or permission of department. Introduction to Kirchoff's laws and terminal equations. Circuit analysis techniques and network theorems. Singularity functions and signals. Transient and natural response of first and second order networks. State variable analysis.

**ECGR 2112. Network Theory II. (3)** Prerequisites: ECGR 2111, MATH 2171, and PHYS 2102, all with grades of C or above. Continuation of ECGR 2111. Introduction to sinusoidal steady state. Time frequency domain analysis. Power and energy. Two port networks. Fourier series. Introduction to Fourier and Laplace transforms.

**ECGR 2155. Instrumentation and Networks Laboratory. (1) (W)** Prerequisite: MATH 1242 with grade of C or above. Pre- or corequisite: ECGR 2111 or permission of department. Network measurements and applications, introduction to laboratory equipment and techniques.

**ECGR 2156. Logic and Networks Laboratory. (1) (W)** Prerequisite: ECGR 2155. Pre- or corequisites: ECGR 2112 and ECGR 2181, or permission of department. Experimental logic design, network measurements, applications, and instrumentations.

**ECGR 2161. Basic Electrical Engineering I. (3)**  
Prerequisite: PHYS 2102 with grade of C or above. Fundamental concepts and methods of analysis of D.C. and A.C. circuits, elementary operation of electronic devices. Not open to Electrical and Computer Engineering majors.

**ECGR 2181. Logic Systems Design I. (3)**  
Prerequisite: MATH 1242 with grade of C or above or permission of department. Introduction to Boolean algebra; mixed logic; design of combinational circuits; introduction to sequential systems; MSI building blocks; includes laboratory design projects.

**ECGR 2252. Electrical Engineering Design I. (2) (0)**  
Prerequisites: ECGR 2111 and ECGR 2155 or equivalents. Pre- or corequisites: ECGR 2112 and ECGR 2181 or equivalents. Introduction to the electrical engineering design process including teamwork, design specifications, conceptual design, detailed design, design integration, cost estimation and market considerations. Product design projects are completed and laboratory prototypes are developed and tested by design teams. Oral presentations and written technical reports on the design projects are required.

**ECGR 2255. Digital Design Laboratory. (2)**  
Prerequisites: ECGR 2156 and ECGR 3181 with grades of C or above. Experiments in Digital Systems Design including the use of Programmable Logic Devices.

*Upper division engineering courses (3000 level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**ECGR 3090. Special Topics in Electrical Engineering. (1-4)** Prerequisite: Permission of department. The course builds upon and synthesizes knowledge from the engineering science, mathematics, and physical sciences stem of the core curriculum. The specific topics teach engineering analysis, synthesis, and design, while simultaneously affording an opportunity for the students to investigate an area of specialization. *May be repeated for credit.*

**ECGR 3111. Signals and Systems. (3)** Prerequisite: ECGR 2112 with grade of C or above. Analysis of continuous-time signal and systems. Input-output relationships of linear time-invariant systems. Transient and steady state analysis. Frequency domain descriptions and Fourier analysis. Analysis and characterization of LTI systems using Laplace transforms.

**ECGR 3112. System Analysis II. (3)** Prerequisite:

ECGR 3111 with grade of C or above. A continuation of ECGR 3111 emphasizing system response characteristics in the frequency domain. Introduction to techniques of analysis of continuous and discrete systems.

**ECGR 3121. Introduction to Electromagnetic Fields. (3)** Prerequisite: ECGR 2112 and MATH 2241 with grades of C or above. A study of electric and magnetic fields using the vector formulation. Vector analysis. Electrostatics: potential functions, dielectrics, capacitance, energy, and forces associated with electric fields, solution of Laplace's and Poisson's equations. Magnetostatics: vector potential functions, Lorentz forces, hysteresis, magnetic polarization and induction, and energy. Gauss's, Ampere's, Faraday's laws, etc., leading to the Maxwell's equations.

**ECGR 3122. Electromagnetic Waves. (3)** Prerequisite: ECGR 3121 with grade of C or above. A study of Maxwell's equations, transmission line theory, plane waves in media, propagation of electromagnetic waves in various media. The phenomena of reflection and refraction at interfaces of two dissimilar materials. Guided electromagnetic waves in coaxial cables and waveguides.

**ECGR 3123. Data Communications and Networking. (3)** Prerequisites: ECGR 2111 and ECGR 2181. An introduction to data communications, including transmission media, signal encoding, link control, and multiplexing. Concepts of networking including protocols, LAN, WAN, and wireless networks.

**ECGR 3131. Fundamentals of Electronics and Semiconductors. (3)** Prerequisite: ECGR 2112 with grade of C or above. Study of the fundamental concepts and applications of semiconductor devices. Diode characteristics and applications, including clipping and rectifier circuits. MOS, JFET, and bipolar transistor fundamentals, including D.C. biasing and small-signal analysis of single-stage amplifiers. Operational amplifier fundamentals.

**ECGR 3132. Electronics. (3)** Prerequisites: ECGR 3131 with grade of C or above. Low and high-frequency analysis of transistor amplifiers. Multistage and feedback amplifier design. Stability and oscillation. Operational amplifier design and applications.

**ECGR 3133. Solid State Microelectronics I. (3)** Prerequisites: ECGR 3121 and PHYS 3141, or permission of department. Simple crystal structures, energy bands, and charge carriers in semiconductors, distribution functions for photons and electrons, optical and electrical properties, carrier diffusion, generation, and recombination.

**ECGR 3142. Electromagnetic Devices. (3)**  
Prerequisite: ECGR 3121 with grade of C or above. Principles of operation and basic design features of electromechanical energy converters. The role of the magnetic field in transformers and electrical machines. Generation of induced voltages. Electromagnetic torque development. Speed control. Circuit models and machine performance.

**ECGR 3155. Systems and Electronics Laboratory. (1) (W)** Prerequisites: ECGR 2112 and ECGR 2156. Pre- or corequisites: ECGR 3111 and ECGR 3131, or permission of department. Systems and signals measurements and applications; electronic circuits.

**ECGR 3156. Electromagnetic and Electronic Devices Laboratory. (1) (W)** Prerequisite: ECGR 3155. Pre- or corequisite: ECGR 3132 or permission of department. Measurements and applications of electromagnetic and solid state devices.

**ECGR 3157. Electrical Engineering Design II. (2) (O)** Prerequisites: ECGR 2112, ECGR 2252, and ECGR 2181. Pre- or corequisites: ECGR 3111 and ECGR 3131, or permission of department. Application of conceptual design; circuit design; parameter sensitivity analysis; cost-performance tradeoff analysis and interconnection compatibility design. A design project completed in a laboratory setting and a written technical report and oral presentation on the project are required.

**ECGR 3159. Professional Practice. (2)** Prerequisite: Senior standing in engineering. Ethics; safety and liability in the manufacturing workplace; product design; product development; cost estimating for non-recurring engineering work; production planning; Total Quality Management; and effective technical presentation.

**ECGR 3181. Logic System Design II. (3)** Prerequisite: ECGR 2181 with grade of C or above or permission of department. Digital systems design and test. Top-down design of multi-input based controller systems; programmable logic devices.

**ECGR 3182. Digital Electronics. (3)** Prerequisites: ECGR 3131 and ECGR 3181 with grades of C or above. Bipolar and field-effect transistors, switching characteristics, device models, logic families. Memory devices, one-shots, Schmitt triggers, logic gates, drivers. Use of logic analyzers.

**ECGR 3183. Computer Organization. (3)** Prerequisites: ECGR 3181 and ECGR 2103 or ITCS 1213 or permission of instructor. Introduction to key concepts in computer organization, design, and engineering including the following topics: CPU

performance analysis, instruction set design, systems-level view of computer arithmetic, design of the datapath and control for a simple processor using VHDL, pipelining, hierarchical memory, I/O systems.

**ECGR 3253. Senior Design I. (2) (O, W)**  
Prerequisites: Senior standing in engineering, ECGR 2155, ECGR 2156, ECGR 3111, and ECGR 3131, all with grades of C or above. A project-oriented course stressing the planning and design of experiments to support the student's project. Formation of the design problem and specification.

**ECGR 3254. Senior Design II. (3) (O, W)**  
Prerequisite: ECGR 3253 with grade of C or above. A continuation of ECGR 3253 consisting of project development and analysis, culminating in written and oral presentations.

**ECGR 3695. Electrical Engineering Cooperative Education Seminar. (1)** Prerequisites: ENGR 3590 and permission of the ECE department's co-op advisor. Required for co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. *Graded on a Pass/No Credit basis. May be repeated for credit.*

**ECGR 3890. Individualized Study. (1-3)** Prerequisite: Permission of department. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. *May be repeated for credit.*

**ECGR 3990. Undergraduate Research. (1-4)**  
Prerequisite: Permission of department. This course involves the independent study of theoretical and/or experimental problems in the specialized area of engineering analysis and design. The student can pursue some particular area or problem to a depth much greater than can be undertaken within the scope of existing courses. *May be repeated for credit.*

**ECGR 4090. Special Topics in Electrical Engineering. (1-4)** Prerequisite: Permission of department. Directed study of current topics of special interest. *May be repeated for credit.*

**ECGR 4101. Embedded Systems. (3)** Prerequisite: ECGR 3183 or ITCS 3182. Introduction to designing microcontroller-based embedded computer systems using assembly and C programs. Examination of real-time operating systems and their impact on performance. Computer engineering applications will be emphasized.

**ECGR 4102. Engineering Simulation. (3)**  
Prerequisite: ECGR 2103 or permission of department.

A wide range of simulation related topics are introduced including the theory of simulation, characteristics of simulators, and trade-offs in simulation studies. Continuous and discrete simulation with primary emphasis on application of simulation techniques to engineering problems. Simulation of actual problems based on students' interest and experience areas.

**ECGR 4103. Applied Computer Graphics. (3)** Prerequisite: ECGR 3111 or permission of department. Interactive graphics; raster, character, vector, graphics, display technologies; rotation, scaling, translating of graphics image; image processing/enhancement; feature extraction; 3-D graphics.

**ECGR 4104. Computational Methods in Power Systems. (3)** Prerequisite: ECGR 4142 or permission of department. Numerical techniques for analysis, operation, and planning of power systems. Sparse matrix techniques applied to power flow algorithms. Economic operation of power systems. Optimum power flow.

**ECGR 4111. Control Systems Theory I. (3)** Prerequisite: ECGR 3112 with grade of C or above. Transfer functions, block diagrams, and signal flow graphs. Feedback control system characteristics. The performance and stability of feedback systems using root locus and frequency response methods. Time domain analysis of control systems. The design and compensation of control systems.

**ECGR 4112. Control Systems Theory II. (3)** Prerequisite: ECGR 4111 with grade of C or above. State space techniques and useful state space methods. System stability. Controllability and observability of linear systems. The formulation of the state equations for discrete-time systems and the analysis of these systems by matrices. Analysis of nonlinear systems. Optimal control systems studies.

**ECGR 4113. Modeling and Analysis of Dynamic Systems. (3)** Prerequisite: ECGR 3111 or permission of department. Models and dynamical properties of mechanical, thermal, and fluid systems, utilizing by analogy the properties of electrical circuit theory. Emphasis on the formulation of circuit models and the development of terminal equations of system components. Dynamic response to step, pulse, and sinusoidal driving functions using Laplace transforms. Sinusoidal steady-state and frequency response of systems.

**ECGR 4121. Antennas. (3)** Prerequisite: ECGR 3122 with grade of C or above or permission of department. Radiation into free space, the point source, thin linear antenna, arrays of linear elements, aperture antennas,

impedance, methods of feeding, matching and termination. Antenna systems.

**ECGR 4122. Acoustics. (3)** Prerequisite: ECGR 3122 with grade of C or above. Vibrations and simple vibrating systems; radiating systems; plane waves of sound, dynamic analogies, microphones and other acoustic transducers; acoustic measurements.

**ECGR 4123. Analog and Digital Communication. (3)** Prerequisite: ECGR 3111 with grade of C or above. Analysis and transmission of signals, including analog communication systems (amplitude and frequency modulation); digital communications systems (pulse code modulation and data transmission systems).

**ECGR 4124. Digital Signal Processing. (3)** Prerequisite: ECGR 3111 with grade of C or above. Sampling and signal recovery in linear systems; analysis of sampled systems; discrete and fast Fourier transforms; z-transform; discrete convolution; design of digital FIR and IIR filters.

**ECGR 4125. Foundation of Optical Engineering. (3)** Prerequisites: ECGR 3121 and PHYS 3141, with grade of C or above or permission of department. The engineering aspects and applications of modern optics, optical communications, optical materials, optical devices, basic optical fiber and integrated optics, optical signals, and optical modulation, multiplexing, and related networks, basic Fourier optics and its application in optical images and information. Credit will not be given for ECGR 5125 where credit has been given for ECGR 4125.

**ECGR 4131. Linear Integrated Electronics. (3)** Prerequisite: ECGR 3132 with grade of C or above. Design of linear integrated circuits utilizing bipolar and MOS devices. Application in linear amplifier design, control, and processing of analog signals.

**ECGR 4132. Analog Integrated Circuits Design. (3)** Prerequisite: ECGR 4131 with grade of C or above or permission of department. Topics include: analog MOS modeling, design of current mirrors, references, and operational amplifiers. Both hand analysis and SPICE simulation utilized.

**ECGR 4134. Solid State and Semiconductor Microelectronics II. (3)** Prerequisite: ECGR 3133 with grade of C or above, or permission of department. PN-junctions and Schottky junctions; bipolar and field effect transistors; optoelectronic and heterojunction devices; lithography and integrated circuits; microwave devices; light emitting devices and detectors; quantum devices using superlattices; quantum wells and quantum dots; material preparation and characterization; and measurement techniques.

**ECGR 4135. Physical Electronics. (3)** Prerequisite: ECGR 3122 or PHYS 3181 or permission of department. Dynamics of charged particles; electron motion in electromagnetic fields; types of electron emission; beam focusing; longitudinal and transverse beam waves; microwave generation; plasma parameters.

**ECGR 4136. Semiconductor Optoelectronic Materials and Devices. (3)** Prerequisite: ECGR 3133 with grade of C or above, or permission of department. Direct and indirect bandgap materials; Compound and wide bandgap semiconductors; Electronic properties; Optical properties; Generation and recombination; Junction theory; Light emitting devices; Optical detectors.

**ECGR 4137. Device Electronics for Integrated Circuits. (3)** Prerequisites: ECGR 3132 with grade of C or above or permission of department. The basic operating principles of electronic devices in integrated circuits are treated. The physical models of these devices are discussed. Graduate students are required to carry out laboratory experimentation.

**ECGR 4138. Electronic Thin Film Materials and Devices. (3)** Prerequisite: ECGR 3132 or ECGR 3133 with grades of C or above or permission of department. Applications of thin films in microelectronics/optoelectronics manufacturing processes; vacuum technology, deposition techniques, and the characterization methods relevant to optoelectronic applications; thin film applications such as metallization, silicide formation, light emitting diodes (LED) and lasers, and doping of semiconductors.

**ECGR 4139. Digital Communication Systems. (3)** Prerequisites: ECGR 2181 and ECGR 3131. Topics include: digital data transmission systems, signal and system representation, digital system performance characterization, pulse code modulation, and statistical communications theory.

**ECGR 4140. Introduction to VLSI Processing. (3)** Prerequisite: Permission of department. Microelectronic fabrication; relevant materials, processes, and tools; fabrication of a simple structure in the VLSI clean room/lab.

**ECGR 4141. Power System Analysis I. (3)** Prerequisite: ECGR 3142 with grade of C or above. Representation of power system components for analysis studies. Transmission line parameters. Network equations. Load flow analysis and numerical methods.

**ECGR 4142. Power System Analysis II. (3)**

Prerequisite: ECGR 4141 with grade of C or above. Economic operation of power systems. Short circuit studies. Symmetrical components. Transient stability analysis.

**ECGR 4143. Electrical Machinery. (3)** Prerequisite: ECGR 3142 with grade of C or above. Advanced theory of transformers and rotating. Machines; harmonic and saturation effects on machine performance. Unbalanced operation and transient conditions.

**ECGR 4144. Power Electronics I. (3)** Prerequisite: ECGR 3131 with grade of C or above. High power solid state circuits. Topics include: power transfer, DC/DC converters, DC/AC inverters, AC/DC rectifiers, gate-drive circuits for linear and switching amplifiers, pulse-width modulators, power semiconductors, control and converter modeling, renewable energy system integration.

**ECGR 4146. Introduction to VHDL. (3)** Prerequisites: ECGR 3181 with grade of C or above and knowledge of a computer language, or permission of department. Introduction to VHSIC Hardware Description Language (VHDL) including VHDL-based high-level design of microelectronic systems, VHDL programming, and VHDL synthesis; emphasis on learning and using industry-standard VHDL tools.

**ECGR 4151. Solar Cell Fundamentals and Technology. (3)** Prerequisite: ENGR 1202 "E" sections for Electrical and Computer Engineering students with a grade of C or above. Principles of operation and basic design features of silicon solar cells. Clean room protocols, processes, and fabrication techniques. Solar cell fabrication, testing, and process modifications to improve performance.

**ECGR 4161. Introduction to Robotics. (3)** Prerequisite: Senior standing. Modeling of industrial robots including homogeneous transformations, kinematics, velocities, static forces, dynamics, computer animation of dynamic models, motion trajectory planning, and introduction to vision, sensors, and actuators.

**ECGR 4162. Control of Robotic Manipulators. (3)** Prerequisites: ECGR 4161 and ECGR 4111. Control of industrial robots including linear, nonlinear, and adaptive control of robot's motion plus control of forces and torques exerted by the end-effector. Additional Topics include: computer animation of the controlled behavior of industrial robots, actuator and sensor types, robot vision, and control computer/robot interfacing.

**ECGR 4165. Laser Electronics I. (2)** Prerequisites: ECGR 3121 and PHYS 3141, or permission of

department. Basic principles of quantum electronics, interaction of light with atoms, properties of laser light, and laser applications. Electromagnetic aspects of lasers, Maxwell's Equations and beam, ray optics, matrix methods for the analysis and synthesis of optical systems. Laser resonator design, oscillation modes, mode frequency and stability.

**ECGR 4166. Laser Electronics II. (3)** Prerequisites: ECGR 3121 and PHYS 3141, or permission of department. Interaction of light with atoms. Maxwell-Schrödinger semiclassical analysis. Effects of gain, dispersion, and saturation in the design of laser amplifiers and oscillators.

**ECGR 4171. Introduction to Energy Systems. (3)** Prerequisite: PHYS 2101. Overview of energy systems: energy types, generation, conversion, storage, transportation/transmission, and utilization. Principles, physical structure, processes, and utilization of fossil fuel, nuclear, and renewables for transportation, thermal, and electrical energy generation are discussed along with associated performance metrics. The course also provides an introduction to environmental impacts of energy production, life-cycle analysis, energy efficiency concepts and metrics, transmission systems, grid reliability, and the impact of smart grid technologies. All topics are presented in the context of industry standards as well as federal and state regulations.

**ECGR 4172. Energy Markets. (3)** Prerequisite: ECGR 4171. Energy and power systems in regulated and competitive environments and implications on business decisions for firms in these industries. Topics include: mechanism of energy markets; comparative market systems; determination of prices under different market structures; gas, oil, coal, and electricity market architecture; electricity market design; dispatch and new build decisions; smart grid and renewable energy in electricity markets; risk and risk management in energy including demand and price volatility and use of financial derivatives; and the impact of financial market trends and current and proposed policies on the energy industry.

**ECGR 4181. Computer Architecture. (3)** Prerequisite: ECGR 3183 or permission of department. Latest research and development in the area of computer architecture; multiprocessor architecture, multi-computers, interconnection networks, branch prediction, instruction-level, data-level and thread-level parallelism, and memory hierarchy; high-performance machines and special purpose processors.

**ECGR 4182. Digital System Testing. (3)** Prerequisite: ECGR 3181 with grade of C or above or permission of department. Introduction to VLSI testing,

test process and automatic test equipment, test economics and product quality, test economics, fault modeling, logic and fault simulation, testability measures, combinational and sequential circuit test generation, memory test, analog test, delay test, IDDQ test, design for testability, built-in self test, boundary scan, analog test bus, system test and core test.

**ECGR 4183. Network Synthesis. (3)** Prerequisite: ECGR 4113. The positive real concept, properties and methods of testing. Realizability conditions on driving point functions. Methods of synthesis of one-port. Physical realizability and properties of two-port networks. Transfer function synthesis. Approximation methods.

**ECGR 4184. Device Characterization, Parameterization and Modeling. (3)** Prerequisite: ECGR 3132 Permission of department. Advance device and circuit analysis; device and circuit simulation using SPICE, ECAP or equivalent. Parametric modeling of active devices. Device characterization and parameterization; temperature effects; thermal cycling. Analysis of device failure modes.

**ECGR 4185. Advanced Electromagnetic Field Theory. (3)** Prerequisites: ECGR 3122 or permission of department. Maxwell's equations and propagation. Properties of guided and surface waves. Wave properties of light; physical and fiber optics.

**ECGR 4186. Optical Communication and Optical Signals. (3)** Prerequisites: ECGR 4125 or permission of department. The course covers the fundamentals of modern optical networks, optical systems, and protocols. These include transmission, detection, multiplexing/demultiplexing and related prevailing technology.

**ECGR 4187. Data Communications and Networking II. (3)** Prerequisite: ECGR 3123 or permission of department. Principles of data communication networks; computer communications network architecture (layering) with emphasis on the network layer, transport layer, and application layer; local area networks; medium access control; routing; data transport; Internet applications.

**ECGR 4188. Advanced VLSI Systems Design. (3)** Prerequisite: ECGR 4433. A project-oriented course dealing with advanced topics in VLSI systems design and analysis such as circuit design techniques, array structures, performance estimation, automated routing, and device electronics.

**ECGR 4190. Power Generation: Operation and Control. (3)** Prerequisite: ECGR 4142 or permission of department. Characteristics of power generation units,

steam, nuclear reactor and hydroelectric. Economic and thermal system dispatch. Transmission losses, load flow problems. Hydro scheduling, hydro-plant models. Energy production cost models. Interchange evaluation.

**ECGR 4191. Dynamic and Transient Analysis of Power Systems. (3)** Prerequisite: ECGR 4142 or permission of department. Large-scale systems state descriptions and hierarchical control. State space models, dynamic stability and testing. Stability of simple and multi-machine systems. Transient phenomena in electrical power systems. Transient stability problem.

**ECGR 4193. Experiments in Modern Optical Engineering. (3)** Prerequisites ECGR 4125 and ECGR 4165 or permission of department. This course offers lectures and laboratory experiments in lasers, optical fiber, optical sensing, and optical signal processing. This course is offered as supplement to ECGR 4125 and ECGR 4165 with emphasis on hands on experiments, measurements, and design.

**ECGR 4199. Fundamentals of Nuclear Science and Nuclear Energy: A Contemporary Overview. (3)** Prerequisite: Modern physics or permission of department. Atomic nucleus, kinematics, cross-section, and energy conversion, essential topics in atomic theory, nuclear theory, radioactive decay, interaction of radiation with matter, neutron physics, neutron transport, nuclear reaction. Principles of fission reactors, the fission process, the controlled chain reaction and the critical conditions. Principles of a nuclear reactor, overview of different reactor types, components of the core, reactor containment, reactor safety systems, steam turbine plant, thermo hydraulic aspects of the core and the fuel elements, loss of coolant, break of steam turbine plant, thermo hydraulic aspects of the core and of the fuel elements, loss of coolant, break of steam generator pipe, nuclear reactors accidents, consequences of core melt, and new topics in nuclear reactor design in III and IV generation of reactors.

**ECGR 4222. Multidimensional Stochastic Signal Processing. (3)** Prerequisites: ECGR 3111 or permission of department. Review of probability, univariate and multivariate distribution functions, noise modeling, least-squares estimation, non-linear optimization, Markov chains, Bayes theorem; applications.

**ECGR 4231. Sensors and Actuators. (3)** Prerequisite: ECGR 3121, ECGR 3132, or permission of department. Fundamentals of sensors and actuators, and their applications in smart machines, industry, metrology, and the environment. Materials

for sensors, actuators, electronic and optical sensors, electrooptics, magneto-optics, and fiber optics sensors, microsensors and actuators, sensors and actuators, signal processing and interfaces.

**ECGR 4261. Microwave Circuit Design I. (3)** Prerequisites: ECGR 3122 or permission of department. Design and analysis of microwave devices and circuits; Telegrapher's and wave equations; physical transmission lines; circuit analysis techniques; impedance matching techniques; and Wilkinson power dividers, hybrid couplers, transformers, and filters.

**ECGR 4265. Microwave Devices and Electronics. (3)** Prerequisites: ECGR 3122 and PHYS 2102 with grades of C or above or permission of department. Microwave transmission line theory, parameters, microwave waveguides, microstrip line and components including resonators, slow-wave structures, tees, rings, couplers, circulators, isolators, and microwave tubes. Microwave solid state electronics, including microwave transistors, tunnel diodes, transferred electron devices, avalanche transit-time devices, and mono-lattice microwave integrated circuits.

**ECGR 4290. Science and Technology of Photovoltaics. (3)** Prerequisite: ECGR 3133 with grade of C or above, or permission of the department. Review of semiconductor properties; junctions and operating principles of solar cells; efficiency limits and losses in solar cells; solar cells and sunlight; fabrication of solar cell and modules; design of high efficiency silicon solar cells; heterojunction, thin film, and other promising solar cells; and photovoltaic systems and applications.

**ECGR 4299. Nuclear Reactor Engineering. (3)** Prerequisites: ECGR 4199 and PHYS 3141 or permission of department. Reactor operation and control, neutron diffusion, distribution, moderation, interaction, and transport, nuclear reactor theory, the time-dependent reactor, heat removal, radiation protection, radiation shielding, radiation damage, IV generation reactors, and advanced topics in nuclear reactor technologies and nuclear applications.

**ECGR 4422. Random Processes and Optimum Filtering. (3)** Prerequisites: ECGR 3111 and STAT 3128 or permission of department. Review of probability, univariate and multivariate distribution functions; random processes, discrete and continuous time processes, wide-sense stationary, ergodicity; time- and frequency-domain analysis; linear systems, optimum filtering, Wiener filters, Kalman filters; application.

**ECGR 4433. VLSI Systems Design. (3)** Prerequisites:

ECGR 3131 and ECGR 3181 with grades of C or above or permission of department. Analysis, design, and synthesis of very large scale integrated circuits. A project-oriented course relying heavily on computer-aided design tools for logic, layout design, and simulation.

**ECGR 4892. Individualized Study. (1-6)** Individual investigation and exposition of results. *May be repeated for credit.*

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## Economics (ECON)

**ECON 1090. Topics in Economics. (1-3)** Consideration of topics from the areas of economic theory, economic development, consumer economics, welfare economics, and current economic problems. *May be repeated for credit with change of topic.*

**ECON 1101. Economics of Social Issues. (3)** Economic issues without emphasis on theoretical models. Contemporary economic issues such as pollution control, healthcare, unemployment, and crime are studied. A student is ineligible to take this course if credit has already been received for either ECON 2101 or ECON 2102.

**ECON 2101. Principles of Economics - Macro. (3)** Prerequisite: Sophomore standing. Scope and methodology of economics as a social science, the measurement of national income, the theory of national income determination, money and banking, monetary and fiscal policy, and international economics.

**ECON 2102. Principles of Economics - Micro. (3)** Prerequisite: Sophomore standing. Pricing mechanism of a market economy, the industrial organization of the U.S. economy, problems of economic concentration, the theory of income distribution, and comparative economic systems.

**ECON 3090. Topics in Economics. (3)** Prerequisite: Permission of department. Topics from the areas of economic theory, economic development, consumer economics, welfare economics, and current economic problems. *May be repeated for credit.*

**ECON 3105. Industrial Relations. (3)** Prerequisite: introductory course in economics or permission of instructor. Systematic analysis of the sociological, economic, and legal forces affecting the work environment. Emphasis on labor unions and employment law.

**ECON 3106. Labor Economics. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; and STAT 1220 or equivalent. Economics of labor markets with emphasis on wage and employment

theory, collective bargaining, and human capital theory. Historical and legal forces affecting labor markets.

**ECON 3107. Employment Law. (3)** Cross-listed as MGMT 3243. Legal principles and legislation which control employment decisions in union and non-union settings. Topics include: fair employment practices, anti-discrimination law, representation elections, unfair labor practices, and dispute settlement processes.

**ECON 3112. Econometrics. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; STAT 1220; and INFO 2130; all with grades of C or above. Econometric techniques, including simple and multiple least squares regression with problems and analyses.

**ECON 3115. Money and Banking. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above. The characteristics and functions of money in the modern economy, monetary theory and policy, and financial institutions.

**ECON 3122. Intermediate Microeconomics. (3)** Prerequisites: ECON 2102; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above. Microeconomic analysis with emphasis on consumer theory and the theory of production. Resource allocation and the determination of optimum output and pricing by a firm operating under various market structures. Distribution and welfare theories.

**ECON 3123. Intermediate Macroeconomics. (3)** Prerequisites: ECON 2101; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above. Analysis of economic aggregates with inflation, unemployment, and income determination. Keynesian, Classical, Monetarist, and supply side models.

**ECON 3125. Managerial Economics. (3)** Prerequisites: ECON 2102; MATH 1120 or MATH 1241; STAT 1220 or equivalent; and INFO 2130; all with grades of C or above. Economic decisions of particular interest to business firms (e.g., demand theory and forecasting, cost analysis, and pricing policies).

**ECON 3131. Economic History of the United States. (3)** Prerequisites: ECON 2101 and ECON 2102; STAT 1220 or equivalent; all with grades of C or above; or permission of instructor. Use of economic models to further understanding of the growth and development of the U.S. economy from colonial times to the Great Depression. Emphasis on the sources and consequences of American growth, with particular

emphasis on technological, demographic, and institutional changes.

**ECON 3141. Health Economics. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above. The application of microeconomic concepts to markets for health/medical care, including issues such as healthcare delivery, financing, regulation, and costs.

**ECON 3151. Law and Economics. (3)** Prerequisite: ECON 2102 with grade of C or above. The application of microeconomic concepts to the law with an emphasis on examining the impact of laws on resource use, with the goal of using resources efficiently. The emphasis is on property, contract, tort, and criminal law.

**ECON 3161. Game Theory. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above; or permission of instructor. First course in game theory. The beginning of the course focuses on developing the techniques necessary to solve games. In the latter part of the course, game theoretic analysis is applied to a variety of topics, including, but not limited to, principal agent problems, auctions, and voting. Students see how the tools developed early in the course can be applied to a vast array of problems in economics and related disciplines.

**ECON 3170. Ethics and Global Capitalism. (3)** Cross-listed as MGMT 3170. Prerequisite: Junior standing. The course is a study of ethical arguments supporting and critical of capitalist economic and social systems. Topics to be addressed may include property rights, justice, desert, equality, and sustainable capitalism.

**ECON 3171. International Business Economics. (3)** Prerequisite: ECON 2101 and ECON 2102 with grades of C or above. Survey of international trade and international monetary theory including determination of international trade patterns, welfare implications of international trade and trade restrictions, economic integration, exchange rate determination, and the balance of payments. Credit will not be given for ECON 3171 where credit has already been given for ECON 4171 or ECON 4172.

**ECON 3181. Sports Economics. (3)** Prerequisites: ECON 2101, ECON 2102, and Junior standing. Application of economic principles to professional and amateur sports. Topics include: league structure, team decision-making, labor relations, incentive structures, college athletics, and stadium financing.

**ECON 3400. Economic Internship. (1-3)** Prerequisites: Open to junior and senior Economics majors in good standing. Requires 50 hours of supervised employment per hour of credit and the completion of an academic project. Students must consult the department chair in advance of registration to discuss the availability of positions. A proposal form must be completed and approved prior to registration and the commencement of the work experience. *Graded on a Pass/No Credit basis.* Cannot be taken for credit at the same time or following any other internship for credit and cannot be repeated.

**ECON 3500. Economics Cooperative Education and 49ership Experience. (0)** Prerequisite: Economics major. Enrollment in this course is required for the department's Cooperative Education and 49ership/service 49ership students during each semester they are working in the position. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**ECON 3895. Directed Individual Study. (1-3)** Prerequisites: permission of instructor and the department. Independent study of a theoretical and/or a policy problem in a special area of economics. Students may pursue a particular program in depth. Topics of the investigation may originate from the student or from the faculty member supervising the study. *May be repeated for credit.*

**ECON 4100. Mathematical Economics. (3)** Prerequisites: ECON 2101 and ECON 2102; and MATH 1120 or MATH 1241; all with grades of C or above. Both microeconomic and macroeconomic problems are analyzed with quantitative techniques. Emphasis is given to the study of methods for mathematically formulating economic relationships including the tools used for finding maximums, minimums, and limits to single, recursive, and simultaneous economic relationships.

**ECON 4112. Econometrics II. (3)** Prerequisites: ECON 2101, ECON 2102, and ECON 3112; INFO 2130; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above; or permission of instructor. Investigates advanced data analysis techniques commonly used by economists, focusing on applications, understanding the strengths and limitations of the methods involved, using statistical

and econometric software, and interpreting results. Techniques covered include, but are not limited to, models for dependent variables that are binary in nature, estimation of nonlinear relationships, analysis of panel data (pooled cross-sectional and time series data), and consequences of violation of the classical linear regression model assumptions.

**ECON 4116. Public Finance. (3)** Prerequisites: ECON 2101, ECON 2102, and ECON 3122; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above. Revenue and expenditure problems of governmental units, intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy.

**ECON 4117. Business and Economic Forecasting. (3)** Prerequisites: ECON 2101, ECON 2102, and ECON 3112; INFO 2130; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above; or permission of instructor. Analysis of fluctuations in economic activity, including production, employment, prices and industry sales. Topics include: forecasting methods, business cycle theories, historical record, industry and sales forecasting.

**ECON 4135. Economics of Growth and Development. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; STAT 1220 or equivalent; all with grades of C or above. Theories of economic growth and development applied to varying economic and social systems. Emphasis on current theoretical models of technological innovation and growth.

**ECON 4150. Urban and Regional Economics. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; STAT 1220 or equivalent; all with grades of C or above. Spatial and economic organization of cities and regional areas and their special economic problems. Topics include: economic growth, urban location and land use, poverty, housing, public finance, and urban transportation.

**ECON 4160. Economics of Transportation. (3)** Prerequisites: ECON 2101 and ECON 2102; MATH 1120 or MATH 1241; STAT 1220 or equivalent; all with grades of C or above. Analysis of transportation systems. Topics include: the historical development of various modes, costs and rate-making, regulation and national transportation policy.

**ECON 4171. Economics of International Trade. (3)** Prerequisites: ECON 2101 and ECON 2102; ECON 3122 or ECON 3171; MATH 1120 or MATH 1241; STAT 1220 or equivalent; all with grades of C or above. Theory of international trade, including determination of international trade patterns, welfare implications of

international trade, economic integration, and effects of tariffs and quotas.

**ECON 4172. Economics of International Finance. (3)** Prerequisites: ECON 2101 and ECON 2102; ECON 3123 or ECON 3171; MATH 1120 or MATH 1241; STAT 1220 or equivalent; all with grades of C or above. Survey of international monetary theory. Topics include: exchange rate determination, balance of payments and adjustment, international liquidity, capital movements, international financial organizations, and monetary reform proposals.

**ECON 4177. History of Economic Thought. (3)** Prerequisites: ECON 3122 and ECON 3123 with grades of C or above (one of the two courses may be taken as a corequisite). History of economics as a science and the evolution of theories of value, distribution and employment. Review of the works of Adam Smith, Thomas Malthus, David Ricardo, Karl Marx, Alfred Marshall, Thorstein Veblen, and John Maynard Keynes.

**ECON 4180. Industrial Organization and Public Policy. (3)** Prerequisites: ECON 2102 and ECON 3122; MATH 1120 or MATH 1241; and STAT 1220 or equivalent; all with grades of C or above. An examination of monopolistic competition, oligopoly, and monopoly and questions of public policy in dealing with problems created by industrial concentration.

**ECON 4181. Energy and Environmental Economics. (3)** Prerequisite: ECON 2102 with grade of C or above. Economic issues of both energy and environment. Energy issues include the historical development of energy resources, supply and demand considerations and projections of the future energy balance. Environmental issues are externalities, common property resources, and government regulation. Policy considerations include environmental standards, pollution charges, and property rights. Cost-benefit analysis and microeconomic theory are applied.

**ECON 4200. Senior Seminar. (3)** Prerequisites: ECON 3112, ECON 3122, and ECON 3123, all with grades of C or above; Economics major; and Senior standing. An integrative capstone course for the Economics major that should normally be taken during the student's last semester of study. The primary objective is to provide a framework in which Senior Economics majors can review and solidify their understanding of economic concepts by applying those concepts to specific economic issues. Topics vary. Analytical ability and written and oral communication skills are assessed.

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## Education (EDUC)

### **EDUC 1000. Introductory Topics in Education. (1-6)**

May include classroom and/or clinical experiences related to schooling, teaching, learning, educational policy, and/or curriculum. *May be repeated for credit with change of topic and permission of department.*

### **EDUC 1100. Foundations of Education and Diversity in Schools - Prospect Curriculum. (4)**

For Freshmen students interested in the field of education and the teaching professions. Provides a foundational introduction to education including the social, historical, and philosophical foundations, the organization and various levels of schools, and major issues in American education. 12 hours of field-based activities in school and non-classroom settings are required. Includes the University Prospect for Success engagement curriculum. Students who have earned credit for EDUC 2100 may not take EDUC 1100.

### **EDUC 2100. Foundations of Education and Diversity in Schools. (3)**

For students interested in the field of education and the teaching professions. An introduction to education, including the social, historical, and philosophical foundations, the organization and various levels of schools, and major issues in American education. 12 hours of field-based activities in observing in school and non-classroom settings are required. Students who have earned credit for EDUC 1100 may not take EDUC 2100.

### **EDUC 2150. Human Development Across the Life Span. (3)**

Biological, psychological and social development throughout the life span.

### **EDUC 3200. Service Learning Teaching Methods for K-12 Educators. (3)**

In-depth service learning opportunities for students who will become public school educators. Definitions of community service, volunteerism, democratic education, service-learning pedagogy, community partnership, and leadership are examined.

### **EDUC 3400. Education Internship. (0)**

Prerequisites: A 2.5 GPA and approval by the College internship coordinator. Enrollment in this course is required for students involved in professional work experiences offered through the College of Education internship program. Assignments must be arranged and approved in advance. *May be repeated for credit. Graded on a Satisfactory/Unsatisfactory basis.* Only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the Office of Teacher Education Advising,

Licensure, and Recruitment (TEALR) in the College of Education.

### **EDUC 3500. Education Cooperative Education and 49ership Experience. (0)**

Prerequisites: A 2.5 GPA and approval by the College internship coordinator in conjunction with the University Career Center. Enrollment in this course is required for students involved in professional work experiences offered through the 49ership/service 49ership program. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

### **EDUC 3600. Teaching Fellows Seminar. (1)**

Prerequisite: Membership in good standing in the North Carolina Teaching Fellows Program. A discussion-oriented course in contemporary school issues led by the program's director to cover Teaching Fellows Program expectations and prepare students to participate in required school, community, campus, and other enrichment activities. *May be repeated for credit.*

### **EDUC 3789. Seminar: Honors in Education. (3)**

Prerequisite: Admission to the Honors in Education program. The seminar prepares honors students for a successful thesis by introducing them to the Honors in Education program and by helping them identify an appropriate committee chair and reader. The seminar also covers guidelines for preparing a thesis and appropriate thesis designs and themes. Culminates in the presentation and defense of an acceptable honors proposal.

### **EDUC 3790. Honors Thesis in Education. (3)**

Prerequisite: EDUC 3789 with grade of C or above; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Honors students conduct their research and data analysis, and they write and defend their thesis before their honors committee. A grade of A is required for honors recognition from UNC Charlotte. The thesis must be approved and substantially completed (only minor editorial revisions may remain) prior to the student teaching seminar.

### **EDUC 4000. Topics in Education. (1-6)**

Prerequisite: Admission to a Teacher Education program, major, or minor. May include classroom and/or clinical experiences in the content area. *May*

*be repeated for credit with change of topics and permission of department.*

**EDUC 4290. Modifying Instruction for Learners with Diverse Needs. (3)** Prerequisite: admission to Teacher Education. Corequisite: enrollment in methods course(s) with field experience requirement. Strategies for adapting standard instruction to meet the learning needs of diverse learners, including students at risk for school failure, individuals from culturally and linguistically diverse backgrounds, gifted learners, and students with disabilities.

**EDUC 4291. Modifying Instruction for Learners with Diverse Needs in Secondary Schools. (3)** Prerequisites for Secondary Education Minors: MDSK 2100, MDSK 3151, and SECD 4140. Corequisites for Secondary Education Minors: READ 3255 and one of the following: MDSK 4251, MDSK 4253, ENGL 4254, or MAED 4252. Strategies for adapting standard instruction to meet the learning needs of all members of secondary classrooms, including students at risk for school failure, individuals from culturally and linguistically diverse backgrounds, gifted learners, and students with disabilities.

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## Education Instructional Systems Technology (EIST)

**EIST 4100. Computer Applications in Education. (3)** Computer systems and software for enhancing teaching, learning, and educational management; evaluating, selecting, and integrating courseware; focus on current PC operating system, word processing, database, spreadsheet, presentation, Internet, e-mail, and multimedia software.

**EIST 4135. Audiovisual Communications. (3)** Prerequisite: Junior standing or departmental approval. Overview of traditional and emerging audiovisual media for education, training, marketing, and public relations, emphasizing knowledge and skills for evaluating, designing, producing, and using media such as photography, television, displays, interactive video, and microcomputers to enhance communication.

**EIST 4140. Educational Television. (3)** Prerequisite: Junior standing or departmental approval. An examination of traditional and emerging applications of telecommunications media for teaching, training and informing. Investigation of published research and current strategies for evaluating the social and educational impact of television. Students will evaluate, design, produce, and utilize telecommunications media in micro-teaching settings for the enhancement of communication in their respective disciplines.

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## Elementary Education (ELED)

**ELED 3111. Instructional Design and Technology Integration with Elementary School Learners. (3)** Prerequisite: Admission to Elementary Education Program. Introduction to setting goals and objectives of instruction, various formats of lesson addressing, alignment between instructional objectives, activities, and assessments and the related use of technology in the development of effective and systematic learning environments; focused on current PC operation system, Web@ tools, words processing, spreadsheet, presentation package and other multimedia tools. Five hours of clinical experiences required.

**ELED 3120. The Elementary School Child. (3)** Prerequisite: Admission to Teacher Education. Child development theories and research findings, conceptual relationships between education and developmental paradigms, pathways of individual student development, child-centered and other types of educational reforms, the concept of developmental “needs” and the roles and responsibilities of school staff for meeting children’s developmental needs. Includes approximately 10 hours of field activities.

**ELED 3221. Teaching Science to Elementary School Learners. (3)** Prerequisite: Admission to Teacher Education. Teaching strategies and materials appropriate for teaching inquiry science in grades K-6 with emphasis on using science process skills and content to develop effective science learning experiences for elementary school children. Includes 10 hours of field experiences.

**ELED 3223. Teaching Social Studies to Elementary School Learners. (3) (W)** Prerequisite: Admission to Teacher Education. Teaching strategies and materials for social studies in grades K-6 with emphasis on using social science content to develop effective social studies instructional plans for elementary school children. Includes 10 hours of field experiences in a classroom setting.

**ELED 3226. Teaching Language Arts to Elementary School Learners. (3) (W)** Prerequisite: Admission to Teacher Education. Teaching of language arts in grades K-6, including how the study of language acquisition and growth informs and guides instructional practice. Emphasis on methods for fostering growth in speaking, listening, writing, and reading across the curriculum. Includes 10 hours of field experiences.

**ELED 3800. Individual Study in Elementary Education. (1-6)** Prerequisite: Permission of the student’s advisor. Independent study under the

supervision of an appropriate faculty member. *May be repeated for credit.*

**ELED 4121. Measuring and Evaluating Learning in the Elementary School Curriculum. (3)** Prerequisite: Admission to Teacher Education. Planning for K-6 classroom measurement and evaluation based on objectives with emphasis on writing cognitive, affective, and psychomotor outcomes using an accepted system, and the development of teacher-made tests and other types of classroom assessment, including objectives, essay, oral, performance, and portfolio evaluation. Includes 5 hours of field experiences.

**ELED 4122. Research and Analysis of Teaching Elementary School Learners. (3)** Prerequisite: Admission to Teacher Education. Concepts, methods, and practices used by effective teachers in their daily K-6 classroom routines with emphasis on classroom management and organization. Approximately 10 hours of field experience.

**ELED 4220. Integrating Curriculum for Elementary School Learners. (3)** Prerequisite: Admission to Teacher Education. Curriculum planning and development skills with emphasis on relating school content and skills to societal and individual needs, designing and implementing integrated activities, and attending to the nature and functions of elementary schools. Includes 12 hours of field experiences.

**ELED 4255. CAMMP: Computer Applications and Manipulative Mathematics Programs. (3)** Prerequisite: Admission to Teacher Education and permission of instructor. Examination of constructivism in K-8 mathematics teaching, with emphasis on concrete, representational and symbolic manipulatives; developmentally appropriate computer software.

**ELED 4292. Multicultural Education: Modifying Instruction for Urban Learners. (3)** Prerequisite: Admission to Elementary Education Program and completion of all ELED coursework except 4000-level courses. Assists teachers in developing strategies for differentiating instruction to meet the learning needs of all members of elementary classrooms, including but not limited to, students at risk for school failure, gifted students, and individuals from culturally diverse backgrounds. There is also a focus on socioeconomic class, religion, language, and gender.

**ELED 4420. Student Teaching/Seminar: K-6 Elementary Education. (15) (O)** Prerequisites: Completion of all other coursework and approved Application for Student Teaching. Planned sequence of experiences in the student's area of specialization conducted in an approved school setting under supervision and coordination of a University supervisor

and a cooperating teacher. Students must demonstrate the competencies identified for their specific teaching field in an appropriate grade-level setting. Approximately 35 to 40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester.

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## Electrical Technology (ELET) Engineering

**ELET 1101. Simulation and Schematic Capture. (1)** Introduces computer-aided design and engineering (CAD/CAE) with an emphasis on applications in the electronics field. Topics include: electronics industry standards (symbols, schematic diagrams, and layouts); drawing electronic schematics; simulating electronic circuits and printed circuit board layout of electronic circuits. Techniques for capturing CAD/CAE output to include with reports are also covered. Meets for three (3) lab hours per week in a computer lab.

**ELET 1111. DC Circuits. (3)** Corequisites: ELET 1101 and ELET 1111L. Pre- or corequisite: MATH 1103. An introduction to electric circuits with an emphasis on DC circuit analysis and design. Topics include: fundamental electrical and magnetic principles, circuit analysis laws and theorems, and component characteristics and behaviors..

**ELET 1111L. DC Circuits Laboratory. (1)** Corequisites: ELET 1101 and ELET 1111. This laboratory course supports concepts and practices covered in ELET 1111. Meets for three (3) laboratory hours per week.

**ELET 1212. AC Circuits. (3)** Prerequisites: ELET 1101, ELET 1111 and ELET 1111L with grade of C or above. Corequisites: ELET 1212L and MATH 1103. The continuation of an introduction to electric circuits with an emphasis on AC circuit analysis and design. Topics include: application of electrical and magnetic principles, analysis laws and theorems in AC circuits, an introduction to frequency response and circuit behaviors under AC excitation. Meets for three (3) lecture hours per week.

**ELET 1212L. AC Circuits Laboratory. (1)** Prerequisites: ELET 1111 and ELET 1111L with grades of C or above. Corequisite: ELET 1212. This laboratory course supports concepts and practices covered in ELET 1212. Meets for three (3) laboratory hours per week.

**ELET 1231. Digital Circuits. (3)** Prerequisites: ELET 1101, ELET 1111, and ELET 1111L with grades of C or above. Corequisites: ELET 1231L. Fundamental digital concepts including number systems, logic gates,

Boolean algebra, Karnaugh Maps, and combinational logic. Topics include: combinational digital circuit design and analysis, minimization methods, and hardware descriptor languages such as VHDL. Meets for three (3) lecture hours per week.

**ELET 1231L. Digital Circuits Laboratory. (1)** Prerequisites: ELET 1111 and ELET 1111L with grades of C or above. Corequisite: ELET 1231. This laboratory course supports concepts and practices covered in ELET 1231. Meets for three (3) laboratory hours per week.

**ELET 2121. Electronics I. (3)** Prerequisites: ELET 1212, ELET 1212L, and MATH 1103 with grades of C or above. Corequisite: ELET 2121L. An introduction to semiconductor electronic devices and circuits. Topics include: semiconductor diodes, bipolar junction transistors (BJTs), field-effect transistors (FETs), ideal operational amplifiers and the application of these solid state devices in basic circuits and systems.

**ELET 2121L. Electronics I Laboratory. (1)** Prerequisites: ELET 1212 and ELET 1212L with grades of C or above. Corequisite: ELET 2121. This laboratory course supports concepts and practices covered in ELET 2121. Meets for three (3) laboratory hours per week.

**ELET 2141. Introduction to Power Systems (3)** Prerequisites: ELET 1212, ELET 1212L, and MATH 1103 with grades of C or above. An introduction to electromagnetic fundamentals, power generation and distribution, ac and dc machines.

**ELET 2201. C Programming. (3)** An introduction to the C programming language with an emphasis on applications in Electrical Engineering Technology. Meets for three (3) lecture hours per week.

**ELET 2231. Microprocessor Fundamentals. (3)** Prerequisites: ELET 1231 and ELET 1231L. Corequisite: ELET 2201. Application and design assembly and C language programming for AVR microprocessors. Topics include: system timing, bus cycles, interrupts, stacks and subroutines. Upon completion, students should be able to design, program, verify, analyze, and troubleshoot AVR assembly and C language programs.

**ELET 2241. Instrumentation and Controls. (3)** Cross-listed as ETME 3163. Prerequisites: ELET 1212, ELET 1212L, and MATH 1103 with grades of C or above. Corequisite: ELET 2241L. An introduction to instrumentation for measurement and control of physical variables, with an emphasis on electronic systems. Topics include: a review of basic circuit analysis, electrical instruments, sensors and

measurement principles and a survey of automatic controls from a systems point of view.

**ELET 2241L. Instrumentation Laboratory. (1)** Cross-listed as ETME 3251. Prerequisites: ELET 1212 and ELET 1212L. Corequisite: ELET 2241. This laboratory course supports concepts and practices covered in ELET 2241. Meets for three (3) laboratory hours per week.

**ELET 2290. Sophomore Practicum. (2)** Prerequisites: ELET 1231, ELET 1231L, ELET 2121, ELET 2121L, and ETGR 1201. Introduction to the design process and project management techniques with an emphasis on Engineering Technology applications. Projects are completed individually and provide reinforcement of the design process introduced in ETGR 1201, along with an introduction to project management techniques and technical communication in written and oral formats. Laboratory prototypes are developed and tested. Selected project(s) require a formal presentation.

*Upper division engineering courses (3000-level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**ELET 3113. Network Analysis. (3)** Prerequisites: ELET 1212 and ELET 1212L with grades of C or above, and Junior standing. Corequisite: ETGR 2272 or MATH 1242. An introduction to frequency domain analysis through Laplace Transforms and Fourier Analysis. Topics include: a review of circuit analysis fundamentals in the time domain, circuit transformations, waveform analysis and synthesis and first order natural and forced response with extensive utilization of circuit simulation software.

**ELET 3132. Digital Systems. (3)** Prerequisite: ELET 2231. The design and implementation of digital systems. Topics include: combinational and sequential digital circuits, minimization methods, state machine design and state assignment techniques, hardware descriptor languages such as VHDL, circuit implementation using MSI integrated circuits and programmable logic devices.

**ELET 3132L. Digital Systems Laboratory. (1) (W)** Prerequisites: ELET 1231 and ELET 1231L with grade of C or above and Junior standing in department. Corequisite: ELET 3132 or permission of department. This laboratory course supports concepts and practices covered in ELET 3132. Meets for three (3) laboratory hours per week.

**ELET 3191. Junior Practicum I. (1)** Prerequisites: ELET 2121 and ELET 2121L with grades of C or above,

ELET 2231, and ELET 2290 or AAS Transfer. Students address open-ended, but well-defined, projects in a team environment. In addition to incorporation of a formal design process, particular emphasis is placed on project management and planning. Project(s) require written and/or oral dissemination based on technical communications guidelines provided. The focus of the semester project(s) encompass topics covered in the ELET curriculum through the Sophomore year.

**ELET 3222. Electronics II. (3)** Prerequisites: ELET 2121 and ELET 2121L with grade of C or above and Junior standing in department. A continuation of the study of solid state devices begun in ELET 2121. Topics include: frequency response of single and multistage amplifiers, feedback and stability, linear and nonlinear operational amplifier circuits, and CMOS and BiCMOS circuits with extensive utilization of circuit simulation software.

**ELET 3222L. Electronics II Laboratory. (1) (W)** Prerequisites: ELET 2121 and ELET 2121L with grade of C or above and Junior standing in department. Corequisite: ELET 3222 or permission of department. This laboratory course supports concepts and practices covered in ELET 3222.

**ELET 3232. Microcontroller Systems. (3)** Prerequisites: ELET 2201 and ELET 3132. The application and design of ARM (Advanced RISC Machine) systems. Topics include: assembly and C language programming and an introduction to the control and interfacing of ARM based systems. Upon completion, students should be able to design, construct, program, verify, analyze and troubleshoot ARM assembly and C language programs and supporting hardware.

**ELET 3292. Junior Practicum II. (1)** Prerequisites: ELET 3132, ELET 3132L, and ELET 3191. A continuation of ELET 3191, where students develop requirements and capabilities for open-ended projects encompassing more advanced topics in Engineering Technology. Extensive project planning and a formal design review for selected project(s) are required.

**ELET 4123. Active Filters. (3)** Prerequisites: ELET 3113, ELET 3222, ETGR 2122, and ETGR 2272 or MATH 1242. The design, analysis, simulation and implementation of composite, cascaded and summation filters. Topics include: bilinear transfer functions; cascade design with first-order circuits; biquad circuits; Butterworth lowpass circuits; Butterworth bandpass circuits; the Chebyshev response; sensitivity; frequency transformations; highpass and band-elimination filters.

**ELET 4133. Embedded Systems. (3)** Prerequisite: ELET 3232. The external characteristics of digital and analog integrated circuits and their applications when interfaced to embedded digital systems. Design constraints and considerations due to device limitations and device selection based upon application requirements will be discussed. Upon completion, students should be able to design, program, verify, analyze, and troubleshoot hardware and software in embedded systems.

**ELET 4142. Power Electronics. (3)** Prerequisites: ELET 2141, ELET 3222 and ELET 3222L. An introduction to power electronic devices in electrical systems, including their characteristics, operation, and application.

**ELET 4151. Communication Systems. (3)** Prerequisite: ELET 3113. Basic principles and concepts underlying modern communication systems. Topics include: systems, signals, modulations (AM, FM, PM, FSK, PSK, QAM, PCM), transmission, reception, cellular, caller ID, and networks.

**ELET 4151L. Communication Systems Laboratory. (1) (W)** Prerequisite: ELET 3113. Pre-or corequisite: ELET 4151. This laboratory course supports concepts and practices covered in ELET 4151.

**ELET 4152. Digital Signal Processing. (3)** Prerequisite: ELET 3113. Discrete-time signals; discrete-time systems; Linear constant-coefficient difference equations; Periodic sampling; reconstruction from samples; changing the sampling rate; the z-transform; z-transform properties; transform analysis of linear time-invariant systems; digital filter design techniques; discrete Fourier Transform and the FFT algorithm. Meets for three (3) lecture hours per week.

**ELET 4224. Advanced Filter Design. (3)** Prerequisite: ELET 4123. The design, analysis, simulation and implementation of composite, cascaded and summation filters, extending the material presented in ELET 4123. Topics include: delay filters; inverse Chebyshev filters; elliptic filters; prototype and transformed ladders; ladder design with simulated elements; leapfrog simulation of ladders; switched-capacitor filters; delay equalization; digital filter design; wavelets; and filter banks.

**ELET 4242. Control Systems. (3)** Prerequisite: ELET 3113. Automatic control systems concepts, system modeling, control system components, state space model, transfer function model, time responses, poles and zeros, closed loop, reduction of multiple subsystems, stability analysis, Routh-Hurwitz, performance analysis, design techniques, root locus, Bode, Nyquist, PID, and MATLAB control tool box.

**ELET 4243. Power Networks. (3)** Prerequisite: ELET 2141. Study and design of electric power transmission and distribution systems. Topics include: power network components design and interconnection, system studies, national grid and microgrid power distribution, and grid monitoring and control.

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## Energy and Electromechanical Systems (ENER)

**ENER 4140. Energy Management. (3)** Prerequisite: A working knowledge of engineering economics and thermodynamics. Study of the understanding and implementation of energy management techniques. Emphasis is on energy efficiency applications in homes, businesses, large buildings and industry. Topics include: energy auditing, energy management, energy cost analysis, energy & electric rate structures, lighting, HVAC systems, motors & drivers, boilers and steam systems, cogeneration, commercial and industrial applications and alternative energy sources.

**ENER 4250. Analysis of Renewable Energy Systems. (3)** Prerequisite: ETME 3143 or permission of instructor. System analysis of renewable energy systems: well-to-wheels analysis, lifecycle energy and emissions, total cost, skill sets, methodologies and tool kits needed to analyze various technologies on a consistent basis for a given application. Solar photovoltaics, wind energy, and fuel cell technologies will be covered.

**ENER 4260. Hydrogen Production and Storage. (3)** Prerequisite: PHYS 1101 or equivalent, ETME 3143 or equivalent, or permission of instructor. Basic concepts and principles of hydrogen technologies, including properties, usage, safety, fundamental understanding of hydrogen storage and production technologies.

**ENER 4275. Air Conditioning Systems. (3)** Prerequisite: ETME 3143. Functions and operating characteristics of the major components of refrigerating machines, heat pumps, boilers, furnaces, solar collectors, heat exchangers, fans and pumps. Emphasis on sizing, economics and performance characteristics. Includes coverage of psychometric principles and fan and pump laws.

**ENER 4280. Fuel Cell Technology. (3)** Prerequisite: ETME 3143 or equivalent or permission of instructor. Basic concepts and principles of fuel cell technologies, including chemistry, thermodynamics, electrochemistry, cell components and operating conditions fuel cell systems.

**ENER 4285. Applied Noise and Vibration Control.**

**(3)** Prerequisites: ETME 3113 and ETGR 3171 with grades of C or above. Laplace transformation method for solution of differential equations. Review of Newton's 2nd Law of Motion. Solution to the free vibration problem both with and without damping. Introduction to acoustics and the one dimensional solution to the wave equation. Noise sources and mechanics of noise generation. System design for noise and vibration minimization. Methods of noise and vibration remediation.

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## English (ENGL)

**ENGL 2014. Topics in Writing. (1-3) (W)** Offers instruction and practice in special types of writing, such as research or legal writing, that are not included in other writing courses. In addition, some sections may be designed for students who need strengthening of composition skills, or may offer instruction in various aspects of effective writing. ENGL 2014 *may not be used* toward the requirements for the English major. The *maximum hours of credit* allowed are six for ENGL 2014 or ENGL 2015, or for ENGL 2014 and ENGL 2015 together.

**ENGL 2015. Topics in Writing. (1-3) (W)** Offers instruction and practice in special types of writing, such as writing for publication (exclusive of poetry, drama, and fiction), which are not included in other writing courses. In addition, some sections may offer instruction in various aspects of effective writing. *Not more than* three hours of 2015 may be used toward the requirements for the English major (and those three hours may not be used toward fulfillment of the 12 hours of English language or composition required for licensure in English). The *maximum hours of credit* allowed for any student are six for ENGL 2015 or ENGL 2014, or for ENGL 2015 and ENGL 2014 together.

**ENGL 2050. Topics in English. (3)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 2051. Topics in English - Writing Intensive. (3) (W)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.* Fulfills General Education writing goal.

**ENGL 2052. Topics in English - Oral Communication. (3) (O)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.* Fulfills General Education oral communication goal.

**ENGL 2053. Topics in English - Writing Intensive & Oral Communication. (3) (O, W)** Designed to offer

topics of general interest not included in other courses. *May be repeated for credit with permission of department.* Fulfills General Education writing goal and oral communication goal.

**ENGL 2090. Topics in English. (3)** Special topics not included in other courses. *May be repeated for credit with change of topic.*

**ENGL 2091. Topics in English - Writing Intensive. (3) (W)** Special topics not included in other courses. *May be repeated for credit with change of topic.*

**ENGL 2092. Topics in English - Oral Communication. (3) (O)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 2093. Topics in English - Writing Intensive and Oral Communication. (3) (O, W)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 2100. Writing About Literature. (3) (W)**  
Prerequisite: English major or minor, or Education major. Combined practice in writing and study of literature, emphasizing writing processes including revision.

**ENGL 2101. Masterpieces of British Literature I. (3)** An introduction to British Literature written before 1800. The course also provides backgrounds in the society and culture of the Middle Ages, the Renaissance, and the Age of Reason.

**ENGL 2102. Masterpieces of British Literature II. (3)** An introduction to masterpieces of British Literature written since 1800. The course also provides backgrounds in the society and culture of the Romantic, Victorian, and Modern periods.

**ENGL 2103. Masterpieces of Modern Fiction. (3)** Readings in selected novels and short stories written since 1850.

**ENGL 2104. Major American Writers. (3)** Introductory readings from six to eight authors, approximately half from the 19th century and half from the 20th century, both poetry and prose.

**ENGL 2105. Introduction to Poetry. (3) (W)** Representative poems and poets, drawn from several literary periods that introduce students to several poetic genres, to varied treatments of universal themes (such as love, death, disappointment, joy), and to various ideas about poetic imaginations.

**ENGL 2106. Film Criticism. (3)** Introduction to film as an art form. Emphasis will be on the critical analysis of the form and the content of films with attention to issues of visual narrative, audience, cinematography, editing, acting, etc.

**ENGL 2107. Literature and Film. (3)** Critical study of the intersections of literature and film. *May be repeated for credit with change of topic.*

**ENGL 2108. Introduction to Drama. (3) (W)** Representative plays of the western world from the classical period to the modern period to introduce students to drama as literature, with consideration of staging, conventions of the theater, types of drama, and dramatic theory.

**ENGL 2109. Children's Literature, Media, and Culture. (3)** Study of children's literature as it relates to other media for young people, including film, television, digital narratives, games, and/or comics. *May be repeated with change of topic.*

**ENGL 2114. Learning Community Seminar. (1)**  
Prerequisite: Acceptance into English Learning Community. Educational forum for activities of the English Learning Community. Students will devise and complete assignments relating to their cultural and intellectual activities. *May be repeated for credit up to 3 credits. Graded on a Pass/No Credit basis.*

**ENGL 2116. Introduction to Technical Communication. (3) (W)** Technical Communication theory (such as organization, audience analysis, and editing) is taught in the context of oral and written formats, such as memoranda, proposals, reports, PowerPoint presentations, and includes formats and content common to students' own disciplines.

**ENGL 2125. Imagined Worlds: Creative Writing Laboratory. (3)** In an "experimental" classroom laboratory for creative writers, students learn basic methods, theories, terminology, and approaches to the art of creative writing.

**ENGL 2126. Introduction to Creative Writing. (3) (W)** Introduction to creative writing, including both poetry and fiction writing, assuming little or no previous creative writing experience.

**ENGL 2127. Introduction to Poetry Writing. (3)** An introductory course for those with little experience in reading, writing, and critiquing poetry. Students read and discuss poetry in an anthology and also be responsible for writing poems based on assigned formal strategies or themes and for bringing them to a workshop setting for group critique.

**ENGL 2128. Introduction to Fiction Writing. (3)** An introductory course for those with little experience in reading, writing, and critiquing fiction. Students read and discuss short stories in an anthology and also be responsible for writing stories based on assigned formal strategies or themes and bringing them to a workshop setting for group critique.

**ENGL 2161. Grammar for Writing. (3)** A systematic, hands-on review of the grammar behind professional copy editing for academic and public submission, including techniques for using sentence structure, word choice, and information management to make texts intuitively appealing without sacrificing precision and to maximize reading speed.

**ENGL 2200. Contemporary Literature. (3)** Introduction to trends in contemporary literature. Encourages creativity through scholarly engagement with the world of contemporary literature.

**ENGL 2201. Contemporary Poetry. (3)** Introduction to current trends in American and world poetry. Encourages creativity and scholarly engagement with the exciting and multifaceted world of contemporary poetry.

**ENGL 2202. Contemporary Fiction. (3)** Introduction to current trends in contemporary fiction. Encourages creative and scholarly engagement with the world of contemporary fiction.

**ENGL 2301. Introduction to African American Literature. (3)** Cross-listed as AFRS 2301. Prerequisites: UWRT 1101 and UWRT 1102; or UWRT 1103; or departmental permission. Survey of the major periods, texts, and issues in African American literature. Prerequisite to 4000-level African American literature courses in Department of English.

**ENGL 2400. American Literature Survey. (3)** Surveys the whole of American literature from the Colonial to the Modern period. Major authors and literary movements, as well as important ideas and cultural issues are addressed.

**ENGL 2401. British Literature Survey I. (3)** Surveys British literature from the Medieval period to the Renaissance. Major authors and literary movements as well as important ideas and cultural issues are addressed.

**ENGL 2402. British Literature Survey II. (3)** Surveys British literature from the Neoclassical to the Modern period. Major authors and literary movements, as well as important ideas and cultural issues are addressed.

**ENGL 2403. British Literature Survey. (3)** British

literature from the Medieval period to the present. Major authors and literary movements as well as important ideas and cultural issues are addressed.

**ENGL 3050. Topics in English. (3)** Special topics not included in other courses. *May be repeated for credit with change of topic.*

**ENGL 3051. Topics in English - Writing Intensive. (3) (W)** Special topics not included in other courses. *May be repeated for credit with change of topic.*

**ENGL 3052. Topics in English - Oral Communication. (3) (O)** Offers topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 3053. Topics in English - Writing Intensive and Oral Communication. (3) (O, W)** Offers topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 3100. Approaches to Literature. (3) (W)** Introductory study and application of major critical approaches to literature, such as historical, psychological, mythological, and formalistic.

**ENGL 3102. Literature for Young Children. (3)** Critical study of literature for children under the age of eight, covering such topics as picture books, nursery rhymes, and books for beginning readers.

**ENGL 3103. Children's Literature. (3)** Critical study of various genres of children's literature, such as realistic fiction, fantasy, and picture books.

**ENGL 3104. Literature for Adolescents (3)** Critical study of literature intended for adolescent and pre-adolescent readers, as well as texts that deal with coming-of-age themes.

**ENGL 3132. Introduction to Contemporary American English. (3)** Introduction to the study of word formation, the sound system, and the structure of contemporary American English, including characteristics and applications of traditional grammar.

**ENGL 3157. Twentieth Century Black American Literature: Prose. (3)** Intensive study of selected black American 20<sup>th</sup> century writers of fiction and nonfiction, beginning with the Harlem Renaissance.

**ENGL 3158. Gender and African American Literature. (3)** Cross-listed as AFRS 3158. Exploration of the intersection of gender and African American literature, focusing on either Black women writers or Black male writers, or a combination in dialogue.

**ENGL 3159. African American Poetry. (3)** Cross-listed as AFRS 3159. Intensive study of African American poetry, focusing on one period or traversing several.

**ENGL 3162. Language and the Virtual World. (3)** Explores the various ways in which language is used in cyberspace, and how those practices are re-shaping our daily lives and our cultural expectations.

**ENGL 3180. Language and Digital Technology. (3)** Rhetorical, psychological, and anthropological theories that underscore the interrelations of written, graphic, and digital communication within technical, rhetorical contexts.

**ENGL 3201. Intermediate Poetry Writing Workshop. (3)** Prerequisite: ENGL 2125, ENGL 2126, ENGL 2127, ENGL 2128, ENGL 2200, ENGL 2201, or ENGL 2202, or permission of instructor. Workshop combines the reading and discussion of published poetry with the writing of original creative works.

**ENGL 3202. Intermediate Fiction Writing Workshop. (3)** Prerequisite: ENGL 2125, ENGL 2126, ENGL 2127, ENGL 2128, ENGL 2200, ENGL 2201, or ENGL 2202, or permission of instructor. Workshop combines the reading and discussion of published fiction with the writing of original creative works.

**ENGL 3211. Medieval Literature. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the Medieval era.

**ENGL 3212. British Renaissance Literature. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the 16th and/or 17th centuries.

**ENGL 3213. British Literature of the Restoration and 18th Century. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the Restoration and/or 18th century.

**ENGL 3214. Romantic British Literature, 1785-1832. (3)** Literature from the Romantic period, with emphasis on the works of specific writers, which may include works by men and women writers such as Wordsworth, Blake, Coleridge, Wollstonecraft, Austen, and Smith.

**ENGL 3215. British Victorian Literature. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the Victorian era.

**ENGL 3216. British Literature in Transition, 1870-1914. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the period 1870-1914.

**ENGL 3217. Modern British Literature. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the 20th and 21st centuries.

**ENGL 3231. Early African American Literature. (3)** Exploration of the major periods, texts, and issues in African American literature from its origins to the Harlem Renaissance.

**ENGL 3232. Early American Literature. (3)** Origins of American literature, from Colonial times to Washington Irving, including such authors as Edwards, Taylor, Franklin, Crèvecoeur, Freneau, and Brown.

**ENGL 3233. American Literature of the Romantic Period. (3)** Important writers and ideas of the period of American romanticism, from Irving through Whitman, including such authors as Poe, Emerson, Thoreau, Hawthorne, and Melville.

**ENGL 3234. American Literature of the Realist and Naturalist Periods. (3)** Important writers and ideas of American literature, from Whitman through the period of World War I, including such authors as Dickinson, Twain, Howells, James, Crane, Dreiser, and Frost.

**ENGL 3235. Modern American Literature. (3)** Representative American literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the 20th and 21st centuries.

**ENGL 3236. African American Literature, Harlem Renaissance to Present. (3)** Exploration of the major periods, texts, and issues in African American literature from the Harlem Renaissance to the present.

**ENGL 3237. Modern and Recent U.S. Multiethnic Literature. (3)** Representative U.S. multiethnic texts (poetry and/or prose) exemplifying the literary and cultural developments of the 20th and 21st centuries.

**ENGL 3267. Vocabulary, Etymology, and Grammar. (3)** Theoretical and practical exploration of vocabulary, etymology, and grammar for applications in teaching, writing, and editing in professional and technical arenas.

**ENGL 3852. Independent Study. (1-3)** Prerequisite: Permission of department. Individual investigations and appropriate exposition of the results. (Unless special permission is granted by the department chair,

no more than six hours of ENGL 3852 may apply toward the English major.)

**ENGL 4002. Women and Literature. (3)** Selected topics focusing on women and literature, such as images of women, women as writers, and women as literary critics. *May be repeated for credit with change of topic and permission of department (however, only six hours may be used for the requirements for the English major).*

**ENGL 4008. Topics in Advanced Technical Communication. (3)** Prerequisites: ENGL 2116 and COMM 1101. Exploration, both theoretically and practically, of the interrelation of written, oral, graphic, and digital communication within technical rhetorical contexts. *May be repeated for credit one time with permission of department.*

**ENGL 4050. Topics in English. (3)** Special topics not included in other courses. *May be repeated for credit with change of topic.*

**ENGL 4051. Topics in English - Writing Intensive. (3) (W)** Special topics not included in other courses. *May be repeated for credit with change of topic.*

**ENGL 4052. Topics in English - Oral Communication. (3) (O)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 4053. Topics in English - Writing Intensive and Oral Communication. (3) (O, W)** Designed to offer topics of general interest not included in other courses. *May be repeated for credit with permission of department.*

**ENGL 4061. Approaches to Discourse. (3)** Provides tools to understand and analyze discourse and pragmatics in order to analyze genres belonging to various discourse systems such as theater plays, classroom interaction, religious ritual, courtroom interaction, therapy sessions, and service encounters.

**ENGL 4090. Major Authors. (3)** The works, ideas, and life of one to three significant authors. *May be repeated one time using different author(s) and permission of department.*

**ENGL 4102. British Children's Literature. (3)** Focuses on works in British and British Colonial Children's literature. *May be repeated for credit with change of topic.*

**ENGL 4103. American Children's Literature. (3)** Focuses on works in American Children's literature. *May be repeated for credit with change of topic.*

**ENGL 4104. Multiculturalism and Children's Literature. (3)** Focuses on works that represent one or more kinds of cultural, ethnic, or social diversity of the United States and other national literatures. *May be repeated for credit with change of topic.*

**ENGL 4111. Ancient World Literature. (3)** Readings of ancient world literature, in English translation.

**ENGL 4112. Modern World Literature. (3)** Readings in modern world literature, in English and in English translation.

**ENGL 4114. Milton. (3)** A study of the major poems and selections from the minor works of Milton.

**ENGL 4116. Shakespeare's Early Plays. (3)** A study of 10 representative plays from the comedies, histories, and tragedies written 1590-1600.

**ENGL 4117. Shakespeare's Late Plays. (3)** A study of 10 representative plays from the period 1600-1611, including the late tragedies and tragi-comedies.

**ENGL 4118. British Renaissance Literature. (3)** Readings of prose, poetry, and/or drama from the Renaissance period in England (16<sup>th</sup> and 17<sup>th</sup> centuries), which may include works by men and women writers such as Shakespeare, Milton, Donne, Lanier, Wroth, and others.

**ENGL 4120. Romantic British Literature, 1785-1832. (3)** Literature from the Romantic period, with emphasis on the works of specific writers, which may include works by men and women writers such as Wordsworth, Blake, Coleridge, Wollstonecraft, Austen, and Smith.

**ENGL 4121. British Literature of the Restoration and 18<sup>th</sup> Century. (3)** Representative poetry, prose, and/or drama from this period in British literary history, which may include works by men and women writers such as Pope, Dryden, Sheridan, Behn, Centlivre, and others.

**ENGL 4122. British Victorian Literature. (3)** Readings in British literature during the Victorian period in England. Texts studied may include selections from poetry, prose, and/or drama and men and women writers such as Dickens, Browning, Tennyson, Bronte, Eliot, and Wilde.

**ENGL 4123. Modern British Literature. (3)** Representative British literary texts (poetry, prose, and/or drama) that embody the cultural and literary developments of the 20<sup>th</sup> century.

**ENGL 4132. British Drama to 1642, Excluding Shakespeare. (3)** A survey of late-medieval and Renaissance drama in England.

**ENGL 4139. Early American Literature. (3)** Origins of American literature, from Colonial times to Washington Irving, including such authors as Edwards, Taylor, Franklin, Crèvecoeur, Freneau, Brown.

**ENGL 4140. American Literature of the Romantic Period. (3)** Important writers and ideas of the period of American romanticism, from Irving through Whitman, including such authors as Poe, Emerson, Thoreau, Hawthorne, Melville.

**ENGL 4141. American Literature of the Realist and Naturalist Periods. (3)** Important writers and ideas of American literature, from Whitman through the period of World War I, including such authors as Dickinson, Twain, Howells, James, Crane, Dreiser, Frost.

**ENGL 4142. Modern American Literature. (3)** Important writers and ideas of modern American literature, including such authors as Faulkner, Eliot, Hemingway, Cummings.

**ENGL 4145. Literature of the American South. (3)** Selected works of Southern writers that reflect literary and cultural concerns from Colonial times to the present, including such authors as Poe, the early humorists, local color writers, Chopin, Faulkner, Warren, O'Connor, Welty.

**ENGL 4150. Poetry. (3)** Poetry written in English, focusing on a particular period, nationality, or topic. *May be repeated for credit one time with permission of department.*

**ENGL 4151. Drama. (3)** Drama written in English, focusing on a particular period, nationality, or topic. *May be repeated for credit one time with permission of department.*

**ENGL 4153. Fiction. (3)** Fiction written in English, focusing on a particular period, nationality, or topic. *May be repeated for credit one time with permission of department.*

**ENGL 4155. Pan-African Literature. (3)** Introduction to significant Pan-African literature, emphasizing the oral tradition, selected works of major authors in the Caribbean and Africa, and the relationships of these traditions to American, British and other literary traditions. Works not originally written in English will be studied in translation.

**ENGL 4160. Origins of Language. (3)** Study of linguistic theories of how and when human language

developed, with attention to parallel work in anthropology, archeology, and psychology.

**ENGL 4161. Modern English Grammar. (3)** A study of the structure of contemporary English, with an emphasis on descriptive approaches.

**ENGL 4165. Multiculturalism and Language. (3)** Readings in and discussion and application of the interrelationships between language and culture, including basic introduction to contemporary American dialects and to social contexts of language.

**ENGL 4167. The Mind and Language. (3)** Introduction to the study of the mind from a linguistic perspective. Topics include: language growth and loss, language deficits, modularity and hierarchical processing, the interaction of cognitive and linguistic faculties, parsing/processing strategies and limitations, and applications such as therapy, forensics, computing, teaching.

**ENGL 4168. Multimodality and Text Description. (3)** Explores how different modes of communication interact and are integrated in adapted, new or emergent digital discourses and genres. Multimodal analysis includes the analysis of communication in all its forms, but is particularly concerned with texts in which two or more semiotic resources—or 'modes' of communication—are integrated and combined. Such resources include aspects of speech such as intonation and other vocal characteristics, gesture (face, hand, and body) and proxemics, as well as products of human technology such as carving, painting, writing, architecture, image, sound recording, and interactive computing resources.

**ENGL 4181. Writing and Designing User Documents. (3)** Researching and analyzing audiences to write publishable instructions. Includes the production, testing, and revision of tutorials, reference manuals, on-line documents, and digital media for users of computers and other technologies.

**ENGL 4182. Information Design and Digital Publishing. (3)** Prerequisite: ENGL 2116. Theoretical and practical exploration of visual communication. By rhetorically integrating text and graphics, students write and publish documents and online content for digital environments.

**ENGL 4183. Editing with Digital Technologies. (3)** Substantive editing, copyediting, project management, and editing in hardcopy documents and web and digital environments.

**ENGL 4200. Teaching of Writing. (3) (W)** Introduction to various theories that inform practices in

the teaching of writing and methods of teaching writing to middle and secondary learners.

**ENGL 4201. Teaching of Multiethnic Literature. (3) (W)** An overview of the issues, opportunities, and challenges of teaching multiethnic literature in middle and secondary school settings.

**ENGL 4202. Writing Poetry. (3)** Prerequisite: ENGL 2125, ENGL 2126, ENGL 2127, ENGL 2200, ENGL 2201, ENGL 2202, or permission of instructor. Further study of and practice in the writing of poetry within a workshop format. *May be repeated for credit one time with permission of department.*

**ENGL 4203. Writing Fiction. (3)** Prerequisite: ENGL 2125, ENGL 2126, ENGL 2128, ENGL 2200, ENGL 2201, ENGL 2202, or permission of instructor. Further study of and practice in the writing of fiction within a workshop format. *May be repeated for credit one time with permission of department.*

**ENGL 4204. Expository Writing. (3) (W)** Writing of essays, criticism, and various forms of exposition.

**ENGL 4206. Writing Creative Nonfiction. (3) (W)** Prerequisites: English major or minor; and ENGL 2125, ENGL 2126, ENGL 2127, ENGL 2128, ENGL 2200, ENGL 2201, or ENGL 2202, or permission of instructor. Combines the reading and discussion of published creative nonfiction with the writing of original creative works.

**ENGL 4208. Poetry Writing Workshop. (3)** Prerequisite: ENGL 2125, ENGL 2126, ENGL 2127, ENGL 2200, ENGL 2201, ENGL 2202, or permission of instructor. Designed for advanced writers of poetry. Focuses primarily on student work and peer criticism of it. *May be repeated for credit one time with permission of department.*

**ENGL 4209. Fiction Writing Workshop. (3)** Prerequisite: ENGL 2125, ENGL 2126, ENGL 2128, ENGL 2200, ENGL 2201, ENGL 2202, or permission of instructor. Designed for advanced writers of fiction. Focuses primarily on student work and peer criticism of it. *May be repeated for credit one time with permission of department.*

**ENGL 4211. Chaucer and Medieval Literature. (3)** Readings that focus on the works of Chaucer, including *The Canterbury Tales*, and other works from the medieval period in England, which may include *Troilus and Criseyde* and various dramatic texts.

**ENGL 4235. History of the Book. (3)** Explorations of the development, technologies, cultures, and impact of the book and print media.

**ENGL 4254. Teaching English/Communication Skills to Middle and Secondary School Learners. (3)** Prerequisite: Senior English major with a secondary education minor; senior middle grades major, or permission of department. Approaches to the teaching of English, including recent theories and research related to writing and literary study, with special attention to technology. Designed primarily for teaching in grades 6-12.

**ENGL 4260. History of Global Englishes. (3)** Origins and development of the English language, both spoken and written, from its earliest forms to contemporary usage.

**ENGL 4262. Language and Diversity. (3)** Examination of contemporary American varieties of English by region, gender, ethnic identity, socio-economic status, age, social networks, and other cultural groupings.

**ENGL 4263. Linguistics and Language Learning. (3)** Readings in, discussions of, and application of linguistically oriented theories of language acquisition, directed toward gaining an understanding of language-learning processes and stages.

**ENGL 4267. Identity, Social Interaction, and Community in Digital Spaces. (3)** Explores how humans make cyberspace into social space through language practices in online communities. Considers as well how technology use shapes and is shaped in social interaction and how identities, relationships, discourses, and communities develop through digitally-mediated language use.

**ENGL 4270. Studies in Writing, Rhetoric, and Literacy. (3) (W)** Studies of writing, rhetoric, and literacy with an emphasis on historical and cultural contexts.

**ENGL 4271. Studies in Writing, Rhetoric, and New Media. (3) (W)** Studies of writing, rhetoric, and new media and digital technologies with an emphasis on historical and cultural contexts.

**ENGL 4272. Studies in the Politics of Language and Writing. (3) (W)** Explores language and writing as sites of political contestation in local, national, and global contexts. Examines theoretical debates and effects of politics and history on language and learning.

**ENGL 4273. Studies in Writing, Rhetoric, and Identity. (3) (W)** Explores how identities are performed in textual and digital media.

**ENGL 4274. Visual Rhetoric. (3) (W)** Theory and practice of crafting rhetorical arguments in print and electronic media that depend upon visual exhibits, such as drawings, photographs, tables, graphs, icons, and videos.

**ENGL 4275. Rhetoric and Technology. (3) (W)** Research and theories of the rhetorical construction of technology in history and culture.

**ENGL 4277. Digital Literacies. (3)** Exploration of the intersections between evolving digital literacies and traditional school-based literacies.

**ENGL 4290. Advanced Creative Project. (3) (O)** Prerequisites: English major or minor; and ENGL 4202, ENGL 4203, ENGL 4208, ENGL 4209, or permission of instructor. Focuses on the planning of a book-length work of creative writing through independent study and scholarly engagement in related areas of contemporary literature and writing, leading to the development of book proposals, abstracts, discussions of creative works, and oral presentations by students and authors.

**ENGL 4400. Theory and Practice of Tutoring Writing. (1-3) (W)** Prerequisite: Permission of instructor. Through supervised tutorial experience and seminars, this course introduces the student to current developments concerning composition and to a variety of methods for teaching English composition. Highly recommended for those planning to teach or those currently engaged in teaching. *May be repeated for credit one time with permission of department.*

**ENGL 4405. Literacy and Language. (3)** Exploration of how language and literacy can be effectively taught to adolescents. Topics include: composing strategies and the effects of new media on literacy practices.

**ENGL 4410. Professional Internship. (3 or 6)** Prerequisites: Permission of English Internship Coordinator; Junior or Senior status; English major or minor, or Minor in Technical/Professional Writing; 2.5 GPA or above; and taken a course in professional communication (e.g., journalism, technical communication, public relations, public relations lab, or mass media). Students work 8-10 hours (3 hours credit) or 16-20 hours (6 hours credit) per week in a placement arranged by the Internship Coordinator. *May be repeated for credit one time; only three credit hours may be applied to the English major; three additional hours may be counted as a University elective.*

**ENGL 4852. Independent Study. (1-3)** Prerequisite: Permission of department. Individual investigations and appropriate exposition of the results. (Unless special permission is granted by the department chair,

no more than six hours may apply toward the English major.) *May be repeated for credit with permission of department.*

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## Engineering (ENGR)

**ENGR 0600. Engineering Freshman Learning Community Seminar. (0)** Required for all residents of the Freshman Learning Community (FLC). The FLC has three goals: build community with students, faculty, and engineering professionals; learn about the engineering disciplines; and learn how to be a successful engineering student. The seminar offers workshops, site visits, and other activities. *May be repeated for credit. Graded on a Pass/No Credit basis.*

**ENGR 1201. Introduction to Engineering Practices and Principles I. (2)** Corequisite: MATH 1241. An introduction to the different disciplines within engineering; the college's computing system; academic, personal and professional development; teamwork; project planning; engineering design; engineering calculations; and oral and written communication skills within a multi-disciplinary format.

**ENGR 1202. Introduction to Engineering Practices and Principles II. (2)** Prerequisite: ENGR 1201 with grade of C or above. Additional prerequisite for mechanical engineering majors: MATH 1241 with grade of C or above. Corequisite: ENGR 1201 with permission of department. Applications in the disciplines of Civil, Electrical, Mechanical, and Systems Engineering using tools and techniques specific to the major. Emphasis on analytical and problem solving skills and understanding of the profession/curriculum.

**ENGR 1241. Engineering Analysis. (3)** Prerequisites: Engineering major and an appropriate eligibility level of mathematics placement, MATH 1103 with grade of C or above, or placement by the department. Elementary functions, derivatives and their applications in engineering problems, introduction to definite integrals in solving engineering problems. May not be taken for credit if credit for MATH 1241 has been given.

*Upper division engineering courses (3000 level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**ENGR 3095. Leadership Academy Capstone. (0)** Prerequisites: Admittance into the Leadership Academy program. Participants apply leadership, teamwork, ethical decision-making, communication, and strategic planning principles learned during prior semester Leadership Academy modules to a community-based service learning project.

Implementation and evaluation of projects are approved by Leadership Academy staff and advisory board members. *Graded on a Satisfactory/Unsatisfactory basis.*

**ENGR 3210. Senior Design Laboratory I. (0)**  
Corequisite: Senior Design I. Laboratory experience to facilitate team interaction and mentor instruction in the multidisciplinary capstone experience. *May be repeated.*

**ENGR 3220. Senior Design Laboratory II. (0)**  
Corequisite: Senior Design II. Continuation of Senior Design I Laboratory to facilitate team interaction and mentor instruction in the multidisciplinary capstone experience. *May be repeated.*

**ENGR 3290. Fundamentals of Engineering Review. (1)**  
Prerequisite: Senior standing. Review of the basic engineering and science material covered on the Fundamentals of Engineering examination, the first step toward professional licensure. *Graded on a Pass/No Credit basis.*

**ENGR 3295. Multidisciplinary Professional Development. (1)**  
Prerequisite: Junior or Senior standing per departmental requirements. A series of multidisciplinary and disciplinary seminars and activities designed to introduce students to basic concepts of professionalism in engineering. Topics include: global, societal, and contemporary issues of current interest such as leadership, entrepreneurship, ethics, cultural diversity, and professional licensure.

**ENGR 3590. Engineering Cooperative Education and 49ership Experience. (0)**  
This course is required of Co-op and 49ership/service 49ership students during the semester they are working. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and Co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *May be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**ENGR 4090. Special Topics. (1-4)**  
Directed study of current topics of special interest. *May be repeated for credit.*

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## Business Entrepreneurship (ENTR)

**ENTR 2101. Introduction to Entrepreneurship. (3)**  
Prerequisite: Sophomore standing. Examines the foundations of entrepreneurial thinking from an interdisciplinary perspective. Students gain an overview of how successful entrepreneurs learn about the marketplace, conduct financial/ accounting analyses, and utilize management skills to develop entrepreneurial opportunities in a variety of disciplines including psychology, sociology, humanities, technology, engineering, and healthcare. Principles will be drawn from historical analysis, business, design, engineering, and technology. This course will involve guest speakers and could possibly be team taught (across different sections).

**ENTR 2102. Opportunities, Products, and Project Management. (3)**  
Prerequisite: ENTR 2101 with grade of C or above. An introduction to the first stage of creating an entrepreneurial venture: generating and evaluating ideas in a competitive environment; product development, design, and management; and the project management skills needed to keep the disparate venture activities progressing on schedule. Emphasis is on real case studies and local entrepreneurs' experiences.

**ENTR 3101. Managing the Start-Up. (3)**  
Prerequisite: ENTR 2102 with grade of C or above. An introduction to financial, legal, and technological concepts for entrepreneurs. Emphasis is on case studies and experience drawn from entrepreneurs, leveraging local entrepreneurs to the extent possible. Topics to be covered include planning for financial feasibility, measuring profitability, forecasting cash flows, monitoring ongoing financial performance, technology and infrastructure requirements, the alternative legal forms of business, and the importance of contracts.

**ENTR 3102. Managing Growth. (3)**  
Prerequisite: ENTR 3101 with grade of C or above. Addresses the business resources and techniques that will face the entrepreneurial business as it begins operations and moves into the successful growth phase. Topics include: networking and managing professional services, logistics and operations, marketing communications and distribution, and organizational design and management.

**ENTR 4101. Business Planning. (3)**  
Prerequisite: ENTR 3102 with grade of C or above. The capstone course designed as an experiential learning opportunity for prospective entrepreneurs pursuing a Certificate in Business Entrepreneurship. Involves the application of

entrepreneurship skills and knowledge through either working closely with the startup of a new venture to aid in the development of a business plan.

**ENTR 4102. Entrepreneurship Internship. (3)**  
Prerequisite: ENTR 3102 with grade of C or above. The Entrepreneurship internship provides a meaningful work experience. The internship requires 150 hours of supervised employment. Internship proposals can be initiated by the student or by the company. Students should consult the Director of the Entrepreneurship Program well in advance of registration to discuss suitability and availability of positions. Proposal forms must be completed and approved prior to registration. Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit.

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## Earth Sciences (ESCI)

**ESCI 1101. Earth Sciences-Geography. (3)** Basic geographical principles and processes in physical geography and the earth sciences: geographic locational methods, earth-sun relationships, earth radiation balance, atmospheric temperature and pressure, interpretation and simple forecasting of weather from mapped data, interpretation of soil-moisture and evapotranspiration balances, soil, climate systems, and biomes.

**ESCI 1101L. Earth Sciences-Geography Laboratory. (1)** Pre- or corequisite: ESCI 1101. Experimental study and investigation of the basic principles and processes in physical geography and the earth sciences; geographic locational methods, earth-sun relationships, earth radiation balance, atmospheric temperature and pressure, interpretation and simple forecasting of weather from mapped data, interpretation of soil-moisture and evapotranspiration balances, soil, climate systems and biomes. One laboratory period of two hours per week.

*Note: Although the laboratory and lecture sections of ESCI 1101 are taught as separate courses, it is strongly recommended that students take ESCI 1101L concurrently with ESCI 1101. Students with scheduling problems or students not fulfilling the University science and technology requirements may take the lecture without the laboratory. Students fulfilling the University science and technology requirements must either: (a) Take ESCI 1101 and ESCI 1101L concurrently; or (b) Take ESCI 1101L in a semester subsequent to taking ESCI 1101.*

**ESCI 2000. Topics in Earth Sciences. (1-4)**  
Treatment of major topical issues in Earth Sciences. *May be repeated for credit with change of topic.*

**ESCI 2010. National Parks: Science Behind the Scenery. (3)** A discussion of the geological, environmental, and policy aspects of America's national parks, which preserve some of the finest landscapes and scenic beauty in the world. Students will learn about the geological processes that created the landscapes in Yellowstone, Yosemite, and the Grand Canyon, as well as many other parks and monuments. The role the parks play as protectors of endangered species, habitats, and undeveloped lands will also be discussed.

**ESCI 2030. Near-Space Balloon Exploration. (2)**  
Students in this course design, build, and launch their own near-space capsule on a weather balloon, 15-20 miles into the stratosphere at the very edge of space. Students learn about the composition and conditions of the atmosphere and near-space environment, how to engineer a vehicle for that environment, take pictures and meteorological data during the flight, track the capsule with GPS, and recover the capsule on a parachute.

**ESCI 2101. The Environmental Dilemma. (3)**  
Nature, causes, and responses to major environmental problems.

**ESCI 2200. Introduction to Earth Sciences Research. (3)** Pre- or corequisites: ESCI 1101, GEOL 1200, and GEOL 1200L. Basic techniques common to research in all of the earth sciences. Research design and organization, utilization of literature resources, and the use of quantitative methods.

**ESCI 2210. Field Methods in the Earth and Environmental Sciences. (3)** Prerequisites: ESCI 1101, ESCI 1101L, GEOL 1200, and GEOL 1200L; or permission of instructor. Field techniques used in studies of earth and environmental sciences. Skills related to the collection and presentation of scientific data emphasized. Earth Sciences majors should take ESCI 2210 as soon as possible after completion of ESCI 1101, ESCI 1101L, GEOL 1200, and GEOL 1200L.

**ESCI 3000. Selected Topics in Earth Sciences. (1-4)**  
Prerequisite: ESCI 1101 and ESCI 1101L or GEOL 1200 and GEOL 1200L, and permission of instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. *May be repeated for credit with change of topic.*

**ESCI 3101. Global Environmental Change. (3)**  
Prerequisite: ESCI 1101 or permission of instructor. Fundamental principles of the climate, including the physical processes responsible for global climate change; relationships between past, present, and future changes; and societal and environmental impacts.

**ESCI 3105. Oceanography. (3)** Prerequisites: ESCI 1101 and GEOL 1200, or permission of instructor. Physical, chemical and geological aspects of the world's oceans. Emphasis on oceanic exploration techniques, oceanic circulation, seawater chemistry, marine geology, and coastal systems.

**ESCI 3150. Natural Environments of North America. (3)** Prerequisites: ESCI 1101 or GEOL 1200, GEOL 1200L. Regional geomorphology and ecology of North America with emphasis on development, maintenance, and interaction of the geomorphic and ecological provinces.

**ESCI 3170. Environmental Quality Management. (3)** Prerequisites: ESCI 1101 and ESCI 1101L. Selected methods of air and water resource analysis with emphasis on conceptual models and statistical techniques of environmental and risk assessment.

**ESCI 3180. Environmental Impact Analysis. (3)** Prerequisites: Earth Science or Geology major with Junior or Senior standing. Environmental impact requirements and associated procedures, guidelines, and methods of assessing physical environmental impacts. Three hours per week of combined lecture and supervised field work leading to the preparation of an environmental impact statement for a locally proposed action.

**ESCI 3190. Biogeography. (3)** Cross-listed as GEOG 3190. Prerequisite: ESCI 1101 or BIOL 2120. The patterns of life across the Earth and the causes of those patterns, with an emphasis on ecological patterns and historical patterns of biodiversity. The origin of the Earth's biological diversity and methods for conserving that biodiversity is also discussed. Emphasis on student written and oral communication.

**ESCI 3205. Water Resources. (3)** Prerequisite: ESCI 1101 or GEOL 1200. The distribution of fresh water and its relevance to society and ecosystems. Fundamentals of the science of water, human use and influence on water, and issues of water management, policy, and law.

**ESCI 3500. Earth Sciences Cooperative Education and 49ership Experience. (0)** Enrollment in this course is required for the department's earth sciences cooperative education and 49ership/service 49ership students during each semester that they are working. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate

students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**ESCI 3501. Earth Sciences Cooperative Education Seminar. (1)** Required course for earth sciences cooperative education students in each semester following a work assignment for presentation of earth sciences reports on the co-op learning experience.

**ESCI 4000. Selected Topics in Earth Sciences. (1-4)** Prerequisites: ESCI 1101, ESCI 1101L, GEOL 1200, GEOL 1200L, or permission of instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. *May be repeated for credit with change of topic.*

**ESCI 4005. Engineering Geology. (3)** Prerequisites: GEOL 1200 and GEOL 1200L, or permission of instructor. the application of geologic principles, techniques, and data to problems in the technology and use of earth materials.

**ESCI 4140. Hydrologic Processes. (4)** Prerequisites: ESCI 1101 and ESCI 1101L or GEOL 1200 and GEOL 1200L. Atmospheric, soils, and geologic aspects of surface and ground water processes. Three lecture hours and one three-hour lab per week.

**ESCI 4155. Fluvial Processes. (4)** Prerequisites: ESCI 1101 and ESCI 1101L or GEOL 1200 and GEOL 1200L. Hydrologic and geomorphic study of the transport of water and earth materials within stream systems. Erosion, mass wasting, open channel flow, sediment transport, flooding, stream channel morphology, morphometry of drainage basins, and related topics. Three lecture hours, three lab hours per week.

**ESCI 4160. Contaminant Transport. (3)** Prerequisites: GEOL 1200, GEOL 1200L, ESCI 1101, ESCI 1101L, GEOL 4145, or permission of instructor. Development and application of equations describing mass and energy transport in the subsurface environment. Three hours lecture per week.

**ESCI 4170. Fundamentals of Remote Sensing. (4)** Prerequisites: ESCI 1101 and GEOL 1200, or permission of instructor. Introduces the physical fundamentals of remote sensing, provides an overview of airborne and satellite remote sensing systems, and offers a basic instruction in the use and interpretation of remote sensing imagery. Identification, interpretation and mapping of both natural and cultural landscape

features are also covered. One 2-1/2 hour lecture and one three-hour lab per week.

**ESCI 4180. Digital Image Processing in Remote Sensing. (4)** Prerequisite: ESCI 4170 or permission of instructor. Offers both a basic instruction in the use and interpretation of remote sensing data, and advanced remote sensing techniques to help students understand what and how remote sensing can contribute to the information needs in various fields. 2-1/2 lecture hours and three lab hours per week.

**ESCI 4210. Soil Science. (4)** Prerequisites: GEOL 1200, GEOL 1200L, ESCI 1101, ESCI 1101L, GEOL 3115, GEOL 3124, or permission of instructor. Study of soils, soil-forming processes and soil morphology with an emphasis on soils as they relate to geologic landscapes and surficial processes. Students will learn how to describe and interpret soils in the field. Three hours lecture, three hours lab per week with occasional field trips.

**ESCI 4222. Watershed Science. (3)** Prerequisites: Earth Science Major. Geography students: ESCI 4140 or 4155 or GEOL 4145; Biology Majors and M.S. Biology students: BIOL 4149 and permission of instructor; Civil Engineering Majors and M.S.C.E. students: CEGR 3141 or 5144 and permission of instructor; all others require the permission of instructor. Examinations of the cycling of water and chemical elements in natural and perturbed watersheds with emphasis on linkages between the hydrologic and biogeochemical processes which control runoff water quality. Topics include: runoff processes, evapotranspiration, nutrient export and stream, riparian and hyporheic zone hydrochemical dynamics.

**ESCI 4233. Geoenvironmental Site Characterization. (4)** Prerequisites: Earth Sciences, Geology, and M.A. Geography majors: ESCI 4140 or 4155. Others require permission of instructor. Advanced field-based examination of hydrologic and geologic conditions in the southeastern United States within the context of current state and federal regulatory requirements and site characterization activities currently performed by professional environmental geoscientists. Topics include: hydrologic investigation and water quality characterization, and geological and geophysical site investigations.

**ESCI 4400. Internship in Earth Sciences. (3-6)** Prerequisite: Permission of department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to the department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the

internship will complement his or her academic program. The department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit, depending on the nature and extent of the internship assignment.

**ESCI 4600. Earth Sciences Seminar. (1) (0)** Prerequisites: ESCI 1101, 1101L, GEOL 1200, 1200L and Senior standing for Earth Sciences and Geology majors or permission of instructor. Advanced seminar series examining major historical and modern research themes in the Earth Sciences. Coursework consists of a series of independent and group oral presentations. The seminar meets weekly for two hours. *May be repeated for credit with change of topic.*

**ESCI 4800. Individual Study in Earth Sciences. (1-4)** Prerequisites: Permission of department and credit hours established in advance; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Tutorial study or special research problems. *May be repeated for credit with change of topic.*

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## Civil Engineering Technology (ETCE)

**ETCE 1104. Civil/Construction CAD Applications. (2)** Prerequisites: ETGR 1103, Civil Engineering Technology or Construction Management major, or permission of department. Introduces students to civil and construction applications of AutoCAD Civil 3D and/or other similar civil engineering survey and design oriented CAD applications. One hour of lecture and three hours of laboratory per week.

**ETCE 1211. Construction Surveying I. (3)** Pre- or corequisite: MATH 1103 and ETCE 1104. Corequisite: ETCE 1211L. A field surveying and site planning course covering standards, units, and calibration of equipment, measurement of distance, elevation, angles; analysis of systematic and random errors in the measurement; and plane survey, design and layout of horizontal and vertical curves, direction and traversing, construction layout and control, and global positioning system. Three hours of lecture per week.

**ETCE 1211L. Construction Surveying I Laboratory. (1)** Pre- or corequisite: MATH 1103. Corequisite: ETCE 1211. Laboratory supporting ETCE 1211. Three hours of laboratory per week.

**ETCE 1222. Construction Materials. (3)** Corequisite: ETCE 1222L. Study of the behavior and physical properties of basic construction materials. Topics include: mineral aggregates, Portland cement concrete, masonry, wood, asphalt concrete, metals, plastics, and other materials. Three hours of lecture per week.

**ETCE 1222L. Construction Materials Laboratory. (1)** Corequisite: ETCE 1222. Laboratory supporting ETCE 1222. Three hours of laboratory per week.

**ETCE 2105. Plan Reading and Quantity Takeoff. (3)** Prerequisites: ETGR 1103 and MATH 1103. Review and interpretation of construction drawings. Calculation of estimated quantities from construction drawings using both manual and electronic means. Focus on drainage, pavement, foundation, structural, floor, roof, and wall systems.

**ETCE 2112. Construction Surveying and Layout. (3)** Prerequisites: CMET 1211 and ETCE 1104. Corequisite: ETCE 2112L. An intermediate surveying and site-planning course covering plane survey, design and layout of horizontal and vertical curves, direction and traversing, design of site plant, control of grading, and global positioning system. Two hours of lecture per week.

**ETCE 2112L. Construction Surveying and Layout Laboratory. (0)** Prerequisites: CMET 1211 and ETGR 1103. Corequisite: ETCE 2112. Laboratory supporting ETCE 2112. Three hours of laboratory per week. *Graded on a Pass/No Credit basis.*

**ETCE 2221. Construction Means and Methods. (3)** Prerequisites: ETCE 2105 and PHYS 1101. A study of the construction means, methods, and equipment used to develop a civil engineering design into a completed structure or system. Topics include: the characteristics, capabilities, and limitations of crews and equipment; selection of individual resources and systems; and analysis based on economics and performance.

**ETCE 2410. Introduction to Environmental Engineering Technology. (3)** Prerequisites: MATH 1103 and ETGR 2101 with grade of C or above. This course is designed to serve as an introduction to environmental engineering technology. The course will provide an overview of the environmental field to include laws and regulations, water quality, hydraulic and hydrologic fundamentals, water and wastewater treatment, groundwater contamination, and solid waste management.

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**ETCE 3131. Soil Mechanics and Earthwork. (3)** Prerequisite: ETGR 2102 or AAS degree. Study of soil mechanics for design and construction of foundations and earthwork. Emphasis on practical aspects for foundation design and earthwork construction. Topics include: soil exploration, properties, classification, compaction, consolidation, hydraulic conductivity, shear strength, and introduction to bearing capacity and lateral earth pressure.

**ETCE 3131L. Soil Testing Laboratory. (1) (W)** Pre- or corequisite: ETCE 3131. Laboratory designed to familiarize the student with the common laboratory soil tests and analysis procedures with emphasis on the significance of the various tests, the testing procedures and the detailed computations. Three laboratory hours per week.

**ETCE 3163. Structural Analysis and Design I. (3)** Prerequisite: ETGR 2102. This course presents basic concepts and principles of structural analysis and design of structural steel, reinforced concrete, masonry products, and timber and engineered wood systems. Emphasis is placed on practical aspects of structural analysis and design to include beams, joists, rafters, columns, trusses, and elementary frames.

**ETCE 3163L. Structures and Materials Laboratory. (1) (W)** Pre- or corequisite: ETCE 3163. Laboratory designed to evaluate structural materials commonly encountered in the civil and construction environments. Basic beam, truss and frame experiments will be conducted. Standard laboratory and field tests for typical materials such as block, brick, asphalt, concrete, steel and timber will be performed. Three laboratory hours per week.

**ETCE 3242. Hydraulics and Hydrology. (3)** Prerequisites: ETGR 2102, ETCE 2410, PHYS 1102, or AAS degree. A study of the fundamental principles of hydraulics and their application in engineering practice, including the fundamentals of fluid flow through orifices, tubes and pipes, in open channels, and over weirs, pump design, network analysis, and modeling.

**ETCE 3242L. Hydraulics Laboratory. (1) (W)** Pre- or corequisite: ETCE 3242. Provides an understanding of the apparatus, techniques, and procedures used to measure hydraulic fluid properties and to verify the fundamentals of fluid flow through orifices, tubes and pipes, in open channels, and over weirs. Three laboratory hours per week.

**ETCE 3264. Structural Analysis II. (3)** Prerequisites: ETCE 3163 and ETGR 2272. Deflection of structures. Analysis of statically determinate structures under fixed and moving loads, influence lines for moving loads. Analysis of statically indeterminate structures using the methods of three-moments, consistent distortions, slope deflection, moment-distribution and approximate analysis. An introduction to matrix methods of structural analysis.

**ETCE 3271. Building Systems. (3)** Prerequisites: ETCE 2410 and PHYS 1102. Basic theory and practical application of heating, ventilation, air conditioning, plumbing and electrical systems in construction. Study of National Fire and Plumbing Codes.

**ETCE 3271L. Building Systems Laboratory. (1) (W)** Pre- or corequisite: ETCE 3271. Laboratory exercises demonstrating the basic theory and practical application of heating, ventilation, air conditioning, plumbing and electrical systems in construction. Three laboratory hours per week.

**ETCE 4073. Special Topics - Civil Engineering Technology. (1-4)** Prerequisites: Senior standing and permission of instructor. A study of new and emerging technical topics pertinent to the field of civil engineering technology. *May be repeated for credit.*

**ETCE 4143. Water and Wastewater Systems. (3)** Prerequisite: ETCE 3242 and CHEM 1111 or CHEM 1251. Study of water supply, treatment, and distribution and liquidwaste disposal systems.

**ETCE 4143L. Environmental Laboratory. (1) (W)** Pre- or corequisite: ETCE 4143. Laboratory on the analysis of water and sewage and problems related to environmental control. Three laboratory hours per week.

**ETCE 4165. Structural Steel Design. (3)** Prerequisite: ETCE 3163. Design of beams and columns, floor framing, tensions and compression members, bolted and welded connections according to AISC specifications.

**ETCE 4251. Highway Design and Construction. (3)** Prerequisites: ETCE 1211 and ETCE 3131. Introduction to highway planning, economic considerations, and traffic engineering. Design and construction of modern highways including grade separations and interchanges.

**ETCE 4251L. Asphalt Mixtures Laboratory. (1) (W)** Pre- or corequisite: ETCE 4251. Study of physical properties of asphalt, of aggregates and their

combinations, principles and practice in the design, construction and control of asphalt mixtures; laboratory tests for asphalts, aggregates, and mixture design, including specimen preparation and stability evaluation. Three laboratory hours per week.

**ETCE 4266. Reinforced Concrete Design. (3)** Prerequisite: ETCE 3163. Design of rectangular beams, T-beams, columns, reinforced concrete floor systems, and reinforced concrete footings according to ACI code. Quality control of concrete and structural inspection.

**ETCE 4272. Capstone Project. (3) (O,W)** Prerequisite: Senior standing in Civil Engineering Technology or permission of department. Utilization of students' previous coursework to creatively investigate and produce solutions for a comprehensive civil engineering technology project.

**ETCE 4344. Applied Hydrology and Storm Water Management. (3)** Prerequisite: ETCE 3242. Treatment of hydrologic principles, prediction of runoff, design of storm water systems and controls, and the application of best management practices.

**ETCE 4350. Construction Geotechnics and Foundations. (3)** Prerequisite: ETCE 3131. Study of the concepts and fundamental principles of construction geotechnics related to foundation engineering / construction excavations, temporary structures, dewatering and slope stability.

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## Electrical Engineering Technology (ETEE)

**ETEE 1101. Electronics Lab I. (1)** Pre- or corequisite: ELET 1111. Experiments that support the concepts and practices covered in ELET 1111. Three laboratory hours per week.

**ETEE 1201. Electronics Lab II. (1)** Pre- or corequisite: ETEE 1223 and ETEE 1213. Experiments that support the concepts and practices covered in ETEE 1223 and ETEE 1213. Three laboratory hours per week.

**ETEE 1213. Digital Circuits I. (3)** Prerequisite: ELET 1111. An introductory course in digital concepts, number systems, logic gates, Boolean algebra and combinational logic. Introduction to logic programming. Introduction to digital circuit technologies.

**ETEE 1223. AC Circuit Analysis. (3)** Prerequisite: ELET 1111. Corequisite: MATH 1103. This course introduces AC electricity with an emphasis on circuit

analysis, measurements, AC principles, circuit analysis laws and theorems, components and test equipment operation.

**ETEE 2101. Electronics Lab III. (1)** Pre- or corequisite: ETEE 2113. Experiments that support the concepts and practices covered in ETEE2113 (Electronic Devices): Introduction to semiconductor based devices with an emphasis on analysis, selection, biasing and applications in power supplies, small signal amplifiers, and switching and control circuits. Three laboratory hours per week.

**ETEE 2113. Electronic Devices. (3)** Prerequisite: ETEE 1223 and MATH1103. This course is an introduction to semiconductor-based devices such as diodes, bipolar transistors, FETs, thermistors, and related components. Emphasis is placed on analysis, selection, biasing, and applications in power supplies, small signal amplifiers, and switching and control circuits.

**ETEE 2122. Electronic Drafting and Design. (2)** Prerequisite: ETEE 1223. Corequisite: ETEE 2113. This course introduces computer-aided drafting (CAD) with an emphasis on application in the electronics field. Topics include: electronics industry standards (symbols, schematic diagrams, layouts); drawing electronic circuit diagrams; electronic drafting practices and components such as resistors, capacitors, and ICs. Topics include: editing, screen capturing, and cutting/pasting into reports.

**ETEE 2133. Digital Circuits II. (3)** Prerequisite: ETEE 1213. Design and application of sequential circuits including flip-flops, counters, registers, and their interactions as state machines. Introduction to the architecture of microprocessors. Introduction to digital signal processing.

**ETEE 2143. Introduction to Electrical Power Systems. (3)** Prerequisite: ETEE 1223. This course covers the basic principles of electric power systems, including transmission lines, generator and transformer characteristics, and fault detection and correction. Emphasis is placed on circuit performance analysis in regards to voltage regulation, power factor, and protection devices.

**ETEE 2201. Electronics Lab IV. (1)** Pre- or corequisite: ETEE 2213. Experiments that support the concepts and practices covered in ETEE2213 (Introduction to Microprocessors): Introduction to microprocessor architecture and microcomputer systems including memory and input/output interfacing, assembly language programming, bus architecture, bus cycle types, I/O systems, memory systems, and interrupts.

**ETEE 2213. Introduction to Microprocessors. (3)** Prerequisite: ETEE 1213. This course introduces microprocessor architecture and microcomputer systems including memory and input/output interfacing, assembly language programming, bus architecture, bus cycle types, I/O systems, memory systems, and interrupts.

**ETEE 2233. Introduction to Computer Networks. (3)** Prerequisite: ETEE 1213. The fundamentals of local area networks and their operation in business and computer environments is covered, including the characteristics of network topologies, system hardware (repeaters, bridges, routers, gateways), system configuration, and installation and administration of the LAN.

**ETEE 2243. Introduction to Control Systems. (3)** Prerequisites: ETEE 1213 and ETEE 1223. The fundamental concepts of control, systems, sensors, actuator, and associated peripheral devices are covered, including rotating machine theory, ladder logic, electromechanical and solid state relays, motor controls, pilot devices, and PLC (programmable logic controllers), programming and networking.

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**ETEE 3124. Analysis of Linear Networks II. (4)** Prerequisite: ETEE 3133 with grade of C or above. Corequisite: ETGR 3171. Circuit analysis utilizing network theorems and techniques in the frequency domain. 2<sup>nd</sup> order responses. Two port network analysis and transfer functions. Bode plots; transformers and filter applications; introduction to Fourier analysis. Application of simulation software for circuit analysis.

**ETEE 3133. Analysis of Linear Networks I. (3)** Prerequisite: ETEE 1223 or AAS degree. Corequisites: MATH 1121 or ETGR 3171 and Junior standing in ET department. Resistive circuits; current and voltage sources; Kirchoff's laws, network theorems, RC and RL circuits; waveform analysis and synthesis; time domain circuit analysis; 1<sup>st</sup> order natural and forced responses; Laplace Transform fundamentals. Circuit transformations. Intro to frequency domain circuit analysis. Application of simulation software for circuit analysis.

**ETEE 3153. ELET Laboratory V. (1) (W)** Corequisites: ETEE 3133 and ETEE 3183. Experiments which support concepts and practice covered in ETEE 3133 and ETEE 3183. Three laboratory hours per week.

**ETEE 3156. ELET Laboratory VI. (1) (W)** Corequisite: ETEE 3124. Experiments with support concepts and practice covered in ETEE 3124. Three laboratory hours per week.

**ETEE 3183. Digital Logic Design. (3)** Prerequisite: ETEE 1213 or AAS degree and Junior standing in ET department. Design of combinational and sequential digital logic circuits. Minimization methods and state assignment techniques. Circuit implementation using MSI, LSI, and programmable circuits. Introduction to computer architecture.

**ETEE 3211. Active Networks I. (3)** Prerequisite: ETEE 3124 with grade of C or above and ETGR 3171. Rectifiers; amplifiers analysis; transistor biasing; small signal models; feedback amplifier analysis; amplifier frequency response.

**ETEE 3212. Active Networks II. (3)** Prerequisite: ETEE 3211 with grade of C or above. Amplifier frequency response (continued); feedback amplifier frequency response; operational amplifiers and applications.

**ETEE 3213. Industrial Electronics. (3)** Prerequisite: ETEE 3124. Pre- or corequisite: ETEE 3211. Power diodes, bipolar power transistors, thyristors, power MOSFET's and their circuit applications to industrial problems.

**ETEE 3214. Operational Amplifiers with Applications. (3)** Prerequisite: ETEE 3211. Idea OP-AMP analysis, practical OP-AMP considerations, linear OP-AMP circuits, nonlinear OP-AMP circuits, practical applications.

**ETEE 3222. Automatic Controls. (3)** Pre- or corequisite: ETEE 3212. Automatic control concepts; mathematical models; control system components; transient and frequency response; control system design.

**ETEE 3230. Electronic Communications. (3)** Prerequisites or corequisites: Senior standing in ET or permission of department. This course covers basic principles and concepts of modern communication systems. Topics include: systems, signals, modulations, transmission, reception and networks.

**ETEE 3240. Fiber Optics Systems. (3)** Prerequisites or corequisites: Senior standing in ET or permission of department. Introduction to optical fiber communications systems. Review of ray and wave optics. Fundamentals of amplitude, frequency, and digital modulation/demodulation. Optic fiber waveguides. Light sources and detectors. Components, systems, and networks.

**ETEE 3255. ELET Laboratory VII (Computer Emphasis). (1) (W)** Corequisite: ETEE 3211. Experiments which support concepts and practice covered in ETEE 3211. Three laboratory hours per week.

**ETEE 3257. ELET Laboratory VII (Electronics Emphasis). (1) (W)** Corequisite: ETEE 3211. Experiments which support concepts and practice covered in ETEE 3211. Three laboratory hours per week.

**ETEE 3260. Opto-Electronic Communications Laboratory. (1) (W)** Corequisite: ETEE 3230, ETEE 3240, Senior standing in ET or permission of department. Opto-electronic Communications system measurements, instrumentation, and applications. Experiments support concepts and practice covered in ETEE 3230 and 3240. .

**ETEE 3261. Industrial Instrumentation. (3)** Prerequisites: ETEE 3124. Pneumatic and electrical sensors and transducers used for measuring physical processes, such as temperature, pressure, and flow rate; selection criteria; standards and calibration.

**ETEE 3275. Integrated Circuit Applications. (3)** Prerequisites: ETEE 3183. Study of the external characteristics of digital and analog integrated circuits. Applications of these circuits in digital systems. Design constraints and considerations due to device limitations. Device selection based upon application requirements.

**ETEE 3281. Computer Design. (3)** Prerequisite: ETEE 1213 or AAS degree and Junior standing in ET department. Corequisite: ETEE 3183. Organization and design approaches for computer network systems. LAN design, hardware and software considerations, network operating systems, TCP/IP fundamentals.

**ETEE 3284. Design of Real-Time Systems. (3)** Prerequisite: ETEE 3285. Pre- or corequisite: ETEE 3281. Characteristics and applications of real-time computer systems, especially as applied to process control, monitoring, and data collection; the computer as a part of the total system, programming for real-time applications; reliability and maintainability; effects of downtime.

**ETEE 3285. Assembly-Language Programming. (3)** Prerequisite: ETEE 1213 or AAS degree and Junior standing in ET department. Corequisite: ETEE 3183. Programming methodology and assembly language programming for the MC6800 series microprocessors.

**ETEE 3286. Microcomputer Applications. (3)**

Prerequisite: ETGR 2122 or AAS degree and Junior standing in ET department. Applied programming of microcomputers for engineering applications using Java. Object-oriented program design methods, Graphical user interfaces for data input and output, computer graphics, and computer animation.

**ETEE 3641. Senior Design Project. (1) (O, W)**

Prerequisite: Senior standing in Electrical Engineering Technology or permission of department. A senior design project with a topic agreed to by student and instructor. Course builds upon technology coursework and professional topics seminar. Topics include: project planning design, construction, test documentation, and oral presentation of results.

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## Fire Safety Engineering Technology (ETFS)

**ETFS 1120. Fundamentals of Fire Protection. (3)**

This course is an introduction to the relevant issues one would encounter upon entering a career in fire protection. The course is an overview of many areas including fire protection career opportunities, history of public fire protection, general chemistry and physics of fire, codes and ordinances and fire protection systems and equipment.

**ETFS 1232. Fire Protection Hydraulics and Water Supply. (3)**

Provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems.

**ETFS 1252. Fire Protection Law. (3)**

Provides information about potential legal liabilities encountered every day by fire, safety and emergency personnel. Explains how to research, read and understand various statutes, regulations & cases. Actual cases are presented in detail and followed by explanations that identify the most important issues facing emergency & safety personnel.

**ETFS 2124. Fundamentals of Fire Prevention. (3)**

This course provides a fundamental overview of the history and philosophy regarding fire prevention. Class will investigate the organizational and operational aspects of a fire prevention bureau including the use of fire codes, identification and correction of fire hazards, and the relationships of fire prevention with built-in fire protections systems, fire investigation, and the positive effects of fire and life-safety education.

**ETFS 2126. Fire Investigation. (3)** This course covers investigation into various types of fires: structure, wildland, automobile, fabric, and chemical.

Topics include: fire chemistry and physics, scene analysis, case analysis, arson, the new generation of petroleum products, post-flashover patterns of damage, misuse of post-fire indicators, and documentation.

**ETFS 2132. Building Construction for Fire Protection. (3)**

Studies the components of building construction that relate to fire and life safety. The focus of this course is on fire fighter safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies.

**ETFS 2144. Fire Protection Systems. (3)**

Provides information relating to the features of design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection and portable fire extinguishers.

**ETFS 2230. Hazardous Materials. (3)**

This course focuses on the basic knowledge required to evaluate the potential hazards and behavior of materials considered hazardous. The course examines the reasons for chemical behavior of hazardous materials and is designed to improve decision making abilities when hazardous materials are encountered in the workplace or at an emergency scene.

**ETFS 2264. Fire Behavior and Combustion. (3)**

Explores the theories and fundamentals of how and why fires start, spread, and are controlled.

**ETFS 2264L. Fire Behavior and Combustion Laboratory. (1)**

Laboratory experiments and hands-on computer simulations to illustrate the concepts presented in ETFS 2264.

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**ETFS 3103. Principles of Fire Behavior. (3)**

Fundamental principles of fire chemistry and physics, and mechanisms that control enclosure fires. Topics include: basic principles of fluid mechanics, thermodynamics, heat transfer, and combustion as far as those subjects relate to fire dynamics; ignition of liquids and solids; flame spread over liquid and solid surfaces and through porous fuel beds; burning rate; diffusion flames and plumes; combustion products; and compartment fires.

**ETFS 3103L. Principles of Fire Behavior Lab. (1)**

**(W)** Pre- or corequisite: ETFS 3103 or permission of department. Provides overall instruction and hands-on

experience with fire science related to the material discussed in ETFS 3103. Exposes students to fire experiments such as standard fire tests and state-of-the-art measurements, and enhances their understanding of fire behavior.

**ETFS 3113. Building Fire Safety. (3) (W)** Construction standards and codes to ensure acceptable levels of fire safety in buildings. Topics include: anatomy of building construction, building construction features affecting fire performance, fundamentals of reading plans and specifications, the traditional code approach to passive fire protection, trade-offs between active and passive fire protection, concepts of rational fire design for structural members, and performance-based fire design as an alternative to traditionally prescriptive codes.

**ETFS 3123. Industrial Hazards and Electricity. (3)** Typical industrial hazards encountered including: compressed gasses, chemicals, bio-toxins, radiation sources, boilers and ovens. Introductory concepts and methods of analysis of AC & DC circuits, electrical switchgear, and rotating machinery. Compliance & reporting issues in an industrial setting. Safety procedures and safety equipment will also be discussed in regards to working as a fire safety engineer.

**ETFS 3124. Risk Management for the Emergency Services. (3)** An exploration of management and organizational principles with emphasis on controlling the risk associated with operations in the emergency services. In depth discussion of recognizing and controlling risk, personnel accountability, incident management systems and post-incident analysis as related to the emergency services. Critical analysis of private protection measures available to reduce loss potential.

**ETFS 3144. Active Fire Protection. (3)** Review of fire suppression, alarm, and smoke control systems. Topics include: fixed and portable suppression systems, fire suppression agents and extinguishing mechanisms, fire detection devices, fire protective detection and signaling systems, smoke production in fires and principles of smoke movement and management.

**ETFS 3183. Fire Safety Engineering Problem Analysis. (3)** Prerequisite: ETFS 3103. Methods of solving fire safety engineering problems. Topics include: enclosure fire radiation heat transfer calculations; calculations of vent flows in enclosure fires; estimating ignition, flame spread, and heat release rate properties of materials on the basis of experimental data; smoke filling of enclosures; and conduction heat transfer through fire protective

materials.

**ETFS 3233. Introduction to Performance-Based Fire Safety. (3)** Prerequisite: ETFS 3103. An overview of the relevant performance-based fire protection engineering tools and skills, and presents the basic concepts and a systematic approach for performance-based fire safety design. The tools can also be used in the investigation and reconstruction of fire incidents.

**ETFS 3242L. Fire Testing and Measurement Lab. (1) (W)** Prerequisite: Senior standing in the fire protection concentration. Provides students with opportunities in learning current fire testing and measurement methods and instrumentations, and conducting research to tackle fire safety related real-world problems. Students are afforded unlimited possibilities for learning and achievement.

**ETFS 3283. Fire Hazard Analysis. (3)** Prerequisites: ETFS 3103 and ETME 3244, or permission of department. Elements of quantitative fire hazard analysis are discussed. Applications of deterministic tools for fire hazard analysis are reviewed. Simple engineering calculations and various types of computer models are presented, and their use for predictions of fire conditions and people evacuation are studied, using examples.

**ETFS 3344. Introduction to Structural Fire Safety. (3)** Prerequisites: ETFS 3103 and ETME 3123. Provides basic knowledge needed for structural fire safety design and analysis. Topics include: design philosophies and methods in fire safety engineering, approaches for structural design for fire safety, behavior of compartment fires, and behavior of structural materials in fire. Also requires laboratory sessions in the UNC Charlotte Fire Safety Laboratory.

**ETFS 3344L. Introduction to Structural Fire Safety Laboratory. (1) (W)** Pre- or corequisites: ETFS 3103 and ETME 3123. Provides overall instruction and hands-on experience with fire science related to the material discussed in the Introduction to Structural Fire Safety course. The objective is to expose students to structural fire experiments such as standard structural fire tests and state-of-the-art measurements, and thus enhance their understanding of structural fire behavior of materials.

**ETFS 3400. Practicum. (1-4)** Prerequisite: Junior standing, cumulative 2.2 GPA, and the approval of FSET program faculty. Students participate in an approved applied practicum designed to allow theoretical and course-based learning in a supervised fire and/or safety related environment. Each practicum experience is individual and is arranged with a contract between the supervising faculty member, the student

and the employer. Students must complete the practicum proposal form and identify a faculty member who will direct and evaluate the completed work. Practicum requires a weekly progress report as well as a final report and presentation to be graded by the supervising faculty member. *May be repeated for credit up to 4 credits.*

**ETFS 3611. Professional Leadership Seminar. (1) (O, W)** Provides a framework of executive-level competencies by focusing primarily on areas and issues of personal effectiveness. The issue of command perspective vs. a first line fire fighter perspective are examined. The course includes case study analysis, role-playing and experiential activities. Students will develop desirable goals in the areas of their professional, personal community, and family life. Course Topics include: leadership, multiple roles, decision skills, influencing leaders, coaching and mentoring, and effective use of personal computing.

**ETFS 3800. Independent Study. (1-3)** Prerequisite: Must be classified as a junior, have a cumulative 2.2 GPA and the approval of FSET program faculty. This course is designed to allow students to take responsibility for the direction of their learning about a topic of interest to them. Each independent study is individual and is arranged with a contract between the supervising faculty member and the student. Students must complete the independent study proposal form and identify a faculty member who will direct and evaluate the completed work. Each hour of credit for this course should be comparable to what would be expected in the classroom - 15 hours contact time plus outside work or approximately 30 hours. The project is culminated with a final report and presentation. *May be repeated for credit up to 3 credits.*

**ETFS 4123. Community Threat Assessment and Mitigation. (3)** Focuses on the emergency service's responsibility while conducting major operations involving multi-alarm units, and natural and man-made disasters that may require interagency or jurisdictional coordination. Emphasis is on threat assessment and mitigation strategies of potential large scale disasters including but not limited to earthquakes, hurricanes, terrorism, hazardous materials releases, tornadoes, and floods. Topics include: fireground decision making, advanced incident command, command and control, safety, personnel accountability, hazard preparedness, mitigation, response, recovery, evacuation, sheltering, and communications.

**ETFS 4243. Research Methodology. (3) (O, W)** Application of practical, up-to-date review of fire research and its application. The transfer of research and its implications for fire prevention and protection programs are addressed. Development of a student

project and a written report in a specified area in fire administration or fire science technology with faculty supervision. Analytical modeling, technical research, oral and written reporting of progress and findings are required.

**ETFS 4323. Advanced Fire Service Administration. (3)** A study of management theories, leadership philosophies and strategies for the fire service. Emphasis in the course will be on planning, organizing staffing, and evaluating fire protection services. Public fire education, loss prevention principles, and management of resources particular to fire and emergency services are addressed. Discussion of techniques for assessment of public fire protection and its impact on the community and environment.

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## Engineering Technology (ETGR)

**ETGR 1100. Engineering Technology Computer Applications. (3)** Introduces the use of computer applications required for engineering technologists. Topics include: using the computer to solve technical problems, an introduction to engineering computer applications, and the use of standard office applications in engineering applications. Also covered are topics introducing the use of scientific calculators and various engineering applications software.

**ETGR 1100L. Engineering Technology Computer Applications Laboratory. (1)** Introduces the use of computer applications required for engineering technologists. Topics include: using the computer to solve technical problems, an introduction to engineering computer applications, the use of standard office software, and the use of scientific calculators.

**ETGR 1103. Technical Drawing I. (2)** The fundamentals of technical drawing. Topics include: drawing layouts, sketching, orthographic projections, views, lines, dimensioning techniques, and introduction to Computer Aided Drawing (CAD). Upon completion of the course, students should be able to understand, interpret, and produce basic technical drawings, as well as be familiar with the most common commands of modern computer aided drawing tools such as AutoCAD.

**ETGR 1104. Technical Drawing II. (2)** Prerequisite: ETGR 1103. A continuation of ETGR 1103, this course introduces the student to advanced techniques of Computer-Aided Drawing (CAD). Topics include: three-dimensional wireframe, surface, and solid models, as well as rendering and generation of two-dimensional technical drawings from three-dimensional models. Upon completion of the course, students should be able to create, modify, and render three-dimensional models using modern computer-aided

drawing tools such as AutoCAD.

**ETGR 1201. Introduction to Engineering Technology. (2)** Pre- or corequisite: MATH 1100. An introduction to the different disciplines within engineering technology; the College's computing system; academic, personal, and professional development; teamwork; project planning; engineering design; engineering calculations; and oral and written communication skills within a multi-disciplinary format.

**ETGR 2101. Applied Mechanics I. (3)** Prerequisite: MATH 1103. Fundamentals and applications of statics to include the analysis of force systems using analytical and graphical methods. Included topics are systems of forces, friction, equilibrium of particles and rigid bodies, distributed force systems, centroids and moments of inertia, and introduction to analysis of structures. In addition, stress, deformation, and strain are presented.

**ETGR 2102. Applied Mechanics II. (3)** Prerequisite: ETGR 2101 with grade of C or above. Fundamentals of mechanics of deformable bodies. Topics of study include building loads, stress and strain, thermal deformation and stress, axial load, statically indeterminate axially loaded members, the principle of superposition, torsion, bending and shear stresses in beams, deflection of beams, transformation of stress and strain, Mohr's circle, and stability and buckling of columns.

**ETGR 2106. Electronic Circuits and Devices. (3)** Prerequisites: PHYS 1102 and MATH 1100. Provides an introduction to AC and DC circuits. Simple series and series-parallel circuits are used to illustrate applications of Ohm's Law and Kirchhoff's Laws. Power in DC resistive circuits will be discussed. Sine waves, complex numbers and phasors are introduced to show their applications to analysis of AC circuits. Capacitors and inductors and their effects will be covered.

**ETGR 2122. Technical Programming. (3)** Introduces computer programming using a high level programming language as related to engineering technology. Topics include: input/output operations, sequence, selection, iteration, arithmetic operations, arrays tables, and pointers.

**ETGR 2171. Engineering Analysis I. (3)** Crosslisted as MATH 1121. Prerequisite: MATH 1103 with grade of C or above or MATH ACT 21. Technical problem solutions utilizing analytical geometry and differential calculus. Topics include: limits, differentiation, curvilinear motion, related rates, optimization problems, and transcendental functions.

**ETGR 2272. Engineering Analysis II. (3)**

Prerequisite: ETGR 2171 or MATH 1121, or MATH 1241 with grade of C or above. A continuation of the study of engineering problem-solving procedures utilizing integral calculus. Topics include: integration, areas, volumes, centroids and moments of inertia by integration and multivariate calculus to include partial derivatives, and double integration.

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**ETGR 3000. Special Topics in Engineering Technology. (1-4)** Prerequisite: Senior standing in Engineering Technology or permission of department. Examination of specific new areas which are emerging in the various fields of engineering technology. The course builds upon the knowledge the students have gained from their engineering technology curriculum. *May be repeated for credit.*

**ETGR 3071. Engineering Technology Professional Seminar. (1) (W)** Provides an introduction to the department of Engineering Technology, the William States Lee College of Engineering, and UNC Charlotte. Addresses professional issues such as ethics, corporate culture, and team work. Relies heavily on computer usage outside of class.

**ETGR 3171. Engineering Analysis III. (3)** Prerequisite: ETGR 2272 or MATH 1242 with grade of C or above. A continuation of engineering analysis which includes additional topics and applications in differential equations and linear algebra.

**ETGR 3222. Engineering Economics. (3)** Principles of evaluating alternative engineering proposals. Compound interest formulas and applications, present worth, equivalent uniform annual value, rate of return, depreciation and depletion, economic feasibility of projects.

**ETGR 3223. Geometric Dimensioning & Tolerancing and Metrology. (3)** Prerequisite: Knowledge of engineering graphics and machine shop practices. Study of the latest standard and methods available for the application of GD&T in interpretation and design of engineering drawings to assure form, fit and function while maintaining manufacturing efficiency. Study of and laboratory experiences with precision dimensional measuring instrumentation and machines. Two hours of lecture and three hours of laboratory per week.

**ETGR 3272. Applied Numerical Methods. (3)** Prerequisites: ETGR 2122 and ETGR 3171. This course is designed to familiarize students with numerical methods for the solution of engineering

problems using modern digital computer methods. This course will emphasize applying these techniques to both Mechanical and Civil Engineering Technology problems. This course will expose the student to problem solution techniques using commercially available tools, along with developing the student's ability to construct specialty algorithms within the framework of these tools.

**ETGR 3295. Multidisciplinary Professional Development. (1)** Prerequisite: Junior or Senior standing. A series of multidisciplinary and disciplinary seminars and activities designed to introduce students to basic concepts of professionalism in engineering. Topics include: global, societal, and contemporary issues of current interest such as leadership, entrepreneurship, ethics, cultural diversity, and professional licensure.

**ETGR 3643. Senior Design Project. (3) (O, W)** Prerequisite: Senior Standing and permission of academic advisor. A capstone course in which individual students or teams propose and design a device, system, or process using senior level tools and abilities in their chosen disciplines; teamwork skills; instruction and writing practice in problem definition, design objectives, writing proposals and progress reports, creative problem solving, project planning, design evaluation, final formal technical reports and oral presentations.

**ETGR 3695. Engineering Technology Practicum Seminar. (1)** Prerequisite: ENGR 3590. Required during the semester immediately following each work assignment for students enrolled in ENGR 3590 for presentation of engineering reports (verbal and oral) on work done the prior semester. *May be repeated for credit.*

**ETGR 4100. Capstone Design Project I. (2) (O, W)** Prerequisites: All Freshman-, Sophomore-, and Junior-level technical courses. Mechanical ET Pre- or corequisites: ETME 4163 and ETME 4244. First of a two-semester course sequence in which student teams implement a Senior-level design project which demonstrates abilities as developed by the coursework taken thus far. Project planning techniques are utilized to make substantial progress toward implementation of a design solution.

**ETGR 4200. Capstone Design Project II. (2) (O, W)** Prerequisite: ETGR 4100. Second of a two-semester course sequence in which student teams continue to implement a Senior-level design project which demonstrates abilities as developed by the coursework taken thus far. The design solution developed in the first semester is completed and evaluated during the second semester. The primary engineering results

delivered is a set of rational decisions, where the rationality of those decisions are supported by the appropriate analysis and testing. The quality of the design is usually reflected in a prototype of either the hardware or software system.

**ETGR 4272. Engineering Analysis IV. (3)** Prerequisites: ETGR 2272 or MATH 1242 with grade of C or above, and STAT 1220 with grade of C or above. A continuation of engineering analysis to include additional topics and applications in vector operations, probability, and statistics.

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## Industrial Engineering Technology (ETIN)

*Note: Upper division engineering courses (3000-level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**ETIN 3103. Methods Analysis. (3)** Analysis of work methods; a study of work measurement systems; regression techniques in formula construction; progress curves.

**ETIN 3123. Production Control Systems. (3)** Prerequisite: statistics. Principles, analysis and design of production and inventory planning and control systems. Demand forecasting, production scheduling and control systems and introduction to CPM.

**ETIN 3133. Quality Control. (3)** Principles and applications of quantitative methods of quality control to design and production processes. Introduction to design of experiments, process control charts, Pareto charts, and other quality analysis tools for both service and manufacturing industries.

**ETIN 3203. Plant Layout. (3)** Prerequisite: ETIN 3103. Designing a plant or office with respect to material handling, machine location, auxiliary services, capital requirements, safety and personnel organization.

**ETIN 3233. Occupational Safety. (3)** Causes and prevention of industrial accidents. Hazardous processes and material. Design of accident prevention programs.

**ETIN 3243. Occupational Health Technology. (3)** Methodology and philosophy of evaluating and monitoring the work environment for human stresses and toxic substances which affect the health of the worker. Topics include: gases, vapors, fumes and dust; radio-activity hazards; occupational diseases; thermal stress; illumination and exhaust ventilation.

**ETIN 3263. Human Factors. (3)** Human capabilities and limitations affecting communications and response in man-machine systems. Physiological and psychological fundamentals; anthropometrics.

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## Mechanical Engineering Technology (ETME)

*Upper division engineering courses (3000 level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**ETME 1111. CAD Modeling I. (3)** Corequisite: ETGR 1201. Introduces the concepts of technical drawing and its relationship to the mechanical design process using a feature-based parametric modeler such as SolidWorks. Topics include: sketching, orthographic projections, pictorial views, dimensioning techniques, and introduction to Computer-Aided-Design (CAD).

**ETME 1112. CAD Modeling II. (3)** Prerequisite: ETME 1111 with grade of C or above. A continuation of ETME 1111. Introduces the student to advanced modeling techniques employed in Computer-Aided-Drawing (CAD). Topics include: the use of linked features in drawings, traditional and geometric tolerancing, custom templates, assemblies, and basic animation.

**ETME 2100. Sophomore Design Practicum. (2)** Prerequisites: UWRT 1100, ETGR 1201, and ETME 1112 with grades of C or above. Corequisite: ETME 2100L. A Sophomore-level design practicum focused on a simple, defined mechanical design challenge. Projects are completed individually and introduce students to the design process, project management, machine shop fabrication techniques, memo style report writing and final project demonstrations. Also reinforces topics learned in previous courses such as CAD modeling, documentation generation (drawings), and analytical modeling.

**ETME 2100L. Sophomore Design Practicum Laboratory. (1)** Corequisite: ETME 2100. A Sophomore-level design practicum focused on a simple, defined mechanical design challenge. Projects are completed individually and introduce students to the design process, project management, machine shop fabrication techniques, memo style report writing and final project demonstrations. Also reinforces topics learned in previous courses such as CAD modeling, documentation generation (drawings), and analytical modeling.

**ETME 2102. Mechanisms. (3)** Prerequisites: ETME

1111, ETGR 2171, and PHYS 1101 with grades of C or above. Plane motion and devices used to generate plane motion. Topics include: analysis of displacement, velocity, acceleration, gears, cams, and other mechanical systems.

**ETME 2130. Applied Materials and Manufacturing I. (3)** Prerequisite: ETGR 1201 with grade of C or above. Pre- or corequisite: CHEM 1251. The courses in this series present a fusion of material science and the applied processes used to form engineering materials into useful components or assemblies. This course is part 1 of a two-segment series. It focuses on metallic materials with crystalline structure, and the specific processes used to form and finish these materials. Practical instruction in theory of machine tool operation, casting, rolling and joining is presented. Alloying, heat treatment, corrosion and operational environment appropriate for the subject materials in discussed.

**ETME 2131. Applied Materials and Manufacturing II. (2)** Prerequisites: ETME 2130 with grade of C or above, CHEM 1251, and STAT 1220. Continuation of ETME 2130. Focuses on non-metallic materials, polymer based materials, ceramics, composite materials and materials with amorphous atomic structure. A fusion of material science and the applied processes used to form the subject engineering materials into useful components or assemblies is presented. Molding autoclaving, polymer cross-linking and operational environment appropriate for the subject materials is discussed. Manufacturing quality systems are discussed. Two lecture hours per week.

**ETME 2156. Machine Shop Practices. (2)** Prerequisite: ETGR 1103. Introduction to machine shop techniques and designing for machining with a combination of lectures and projects. Students learn design for machining guidelines, about specification of machining operations, and about shop measurement instruments and techniques.

**ETME 2156L. Machine Shop Practices Laboratory. (1)** Accompanying lab for ETME 2156.

**ETME 2202. Introduction to Parametric Modeling. (2)** Prerequisites: ETGR 1104 and ETGR 1201. Introduces mechanical design techniques using computer based parametric modeling tools. Topics include: feature based solid modeling, design constraints, use of geometric dimensioning and tolerancing (GD&T), assemblies, mechanisms, animations, and design documentation via technical drawings. Upon completion of the course, students will be able to define solid models parametrically and generate the complementary engineering drawings.

**ETME 3100. Junior Design Practicum. (2)**  
Prerequisites: UWRT 1102 and ETME 2100 with grades of C or above. Pre- or corequisite: ETME 3143. Corequisite: ETME 3100L. A Junior-level design studio focused on a more complex, but still completely defined, thermo-fluids and energy system based design challenge. Projects are completed in teams (2-3) and introduce students to group project dynamics, advanced machine shop techniques, data acquisition and analysis. Also reinforces topics learned in previous courses such as the design process, project management, formal report style writing, math modeling (Excel, MATLAB, MathCad and EES), documentation generation (Drawings + Procedure), final project demonstrations, and analytical modeling.

**ETME 3100L. Junior Design Practicum Laboratory. (1)** Corequisite: ETME 3100. A Junior-level design practicum focused on a more complex, but defined, thermo-fluids and energy system based design challenge. Projects are completed in teams (3-4) and introduce students to group project dynamics, advanced machine shop techniques, data acquisition and analysis. Also reinforces topics learned in previous courses such as the design process, project management, formal report style writing, math modeling (Excel, MATLAB, MathCad and/or EES), documentation generation (Drawings + Procedure), final project demonstrations, and analytical modeling. Meets for one 3-hour laboratory session each week.

**ETME 3113. Dynamics. (3)** Prerequisites: ETGR 2101 with grade of C or above; and ETME 2102. Corequisite: ETGR 2272. The dynamic behavior of particles; translation, rotation and plane motion of a rigid body, the principles of conservation of energy and momentum.

**ETME 3123. Strength of Materials. (3)**  
Prerequisites: ETGR 2101 with grade of C or above. Corequisite: ETGR 2272. Stress-strain relationships resulting from direct loads, torsional loads and bending loads, and the results obtained from applying more than one of these loads simultaneously. Beam deflection and column loading.

**ETME 3123L. Stress Analysis Laboratory. (1) (W)**  
Prerequisite: UWRT 1102 and ETGR 1100L with grades of C or above. Pre- or corequisites: ETME 3123 and STAT 1220. Experiments illustrating stress-strain relationships in engineering materials and the use of brittle coating, photoelasticity and electrical-resistance strain gages.

**ETME 3133. Fluid Mechanics. (3)** Prerequisite: ETGR 2101 with grade of C or above. Corequisite: ETGR 2171. Fundamental principles of fluid mechanics. Topics include: manometry, buoyancy,

forces on submerged bodies, boundary layers, flow over surfaces, Bernoulli's equation with applications, orifices, pipe losses, and an introduction to hydrodynamics.

**ETME 3133L. Fluid Mechanics Laboratory. (1) (W)**  
Prerequisite: UWRT 1102 with grade of C or above. Pre- or corequisite: ETME 3133. Flow through conduits and hydraulic components and in open channels. The experimental determination of viscosity, viscous forces, and resulting power losses. Flow measuring devices such as orifices, venturi tubes, anemometers and pitot tubes. Laminar and turbulent flow. Performance of rotating machines such as Pelton turbines, centrifugal fans, and hydrostatic transmissions.

**ETME 3143. Thermodynamics. (3)** Prerequisites: ETME 3133, CHEM 1251, and ETGR 2272. Fundamentals of thermodynamics including work and heat; classical approach to first and second laws of thermodynamics; ideal gas, entropy, reversibility, irreversibility, and study of various processes and cycles.

**ETME 3150. Applied CAD Modeling and Simulation. (3)** Prerequisites: ETME 1112 with grade of C or above; ETME 2102; and ETME 3123. A continuation of ETME 1112. Introduces the use of some of the tools available for the analysis of parametrically-constructed CAD models. Topics include: the finite element method, finite element analysis (FEA), the use of FEA for stress analysis, thermal analysis, and motion studies, and the important distinctions between FEA results, theoretical results, and experimental results.

**ETME 3163. Instrumentation and Controls. (3)**  
Cross-listed as ELET 2241. Prerequisite: ETGR 2106. Introduction to instrumentation for measurement and control of physical variables, with emphasis on electronic systems. Review of basic circuit analysis, electrical instruments, sensors and measurement principles and a survey of automatic controls from a systems point of view.

**ETME 3213. Machine Design I. (3)** Prerequisites: ETME 2130, ETME 3113, and ETME 3123. Analysis and design of clutches, brakes, belts and roller chain. Indeterminate normal loading, superposition of stresses and deflections, compound stresses, columns, and fatigue. Theories of failure. Shaft design, deflections of shafts with non-uniform moments of inertia involving computer verification. Antifriction bearings, engineering materials, helical compression springs. Small mechanical component and system designs.

**ETME 3223. Machine Design II. (3)** Prerequisite: ETME 3213. A continuation of ETME 3213 with

emphasis on new methods of problem solving and opportunities to integrate previously attained skills and knowledge into the design and optimization of small machine systems.

**ETME 3232. Senior Design Project I. (2) (W)**  
Prerequisites: ETME 3113, ETME 3133, and ETME 3143. Co- or prerequisite: ETME 3213 or permission. First of a two-semester course sequence in which each student proposes and implements a senior-level design project which demonstrates abilities as developed by the coursework taken thus far. Each student uses project planning techniques to complete a project proposal and plans and makes substantial progress toward implementation in the first semester and completes the project, including design evaluation during the second semester. One class hour and three lab hours per week.

**ETME 3233. Parametric Model Applications. (3)**  
Prerequisite: ETME 2202. The use of parametric modeling software as a design and analysis tool using software such as Solid Works. Topics include: advanced feature construction, creation of sheet metal components, configurations, linked information, and simulation methods.

**ETME 3242. Senior Design Project II. (2)**  
Prerequisite: ETME 3232. Pre- or corequisite: ETME 3163. Second of a two-semester course sequence in which each student proposes and implements a senior-level design project which demonstrates abilities as developed by the coursework taken thus far. Each student uses project planning techniques to complete a project proposal and plans and makes substantial progress toward implementation in the first semester and completes the project, including design evaluation during the second semester. One class hour and three lab hours per week.

**ETME 3263. Fluid Power. (3)** Prerequisite: ETME 3133. Mechanical and fluid power and the conversion of one to the other. Components and system efficiencies including those consisting of cascaded components. Performance evaluation of such hydraulic components as pumps, motors, valves and metering devices. Viscosity, bulk modulus, noise, optimum performance and system design are considered.

**ETME 3283. Modern Techniques in Energy Conservation and Utilization. (3)** Prerequisite: ETME 3143 or permission of instructor. Survey of current topics that may include solar energy, basic nuclear reactor technology, ammonia-based Rankine cycle, absorption refrigeration cycle, heat pump cycle, techniques for energy conservation in new construction and techniques for retrofitting existing energy utilization systems.

**ETME 4143L. Thermodynamics and Heat Transfer Laboratory. (1) (W)** Prerequisites: UWRT 1102 with grade of C or above, and STAT 1220. Pre- or corequisites: ETME 3143 and ETME 4244. Experimentation involving the fundamental principles of thermodynamics and heat transfer, as applied to internal combustion engines, steam engines, engine dynamometers, refrigeration and heat pumps, solar energy systems, and heat exchangers. Three laboratory hours per week.

**ETME 4163. Instrumentation and Controls. (3)**  
Prerequisites: ETGR 2106, ETGR 2122, and ETGR 2272. Introduction to instrumentation for measurement and control of physical variables, with emphasis on electronic systems. Electrical instruments, signal conditioning circuits, sensors, measurement principles and data acquisition using high level language such as LabVIEW are investigated. Analog and computer-based controllers including PID are introduced. Discrete state controllers such as Programmable Logic Controllers (PLC) are taught from a systems point of view. Topics include: Wheatstone bridge, H-Bridge, op-amps, thermal, mechanical, optical sensors, PLC and PID controllers.

**ETME 4163L. Instrumentation Laboratory. (1) (W)**  
Prerequisites: UWRT 1102 with grade of C or above, and STAT 1220. Pre- or corequisite: ETME 4163. Practice in the use of the various instrumentation devices studied in ETME 4163.

**ETME 4244. Applied Heat Transfer. (3)**  
Prerequisites: ETGR 2272 and ETME 3143. Basic principles of heat transfer. Theory and applications of conduction, free and forced convection and radiation heat transfer. Heat exchangers and heat transfer measurement.

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## Manufacturing Engineering Technology (ETMF)

*Note: Upper division engineering courses (3000-level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**ETMF 3111. Manufacturing Processes. (3)**  
Capabilities, limitations, and operating characteristics of families of machine tools and processes; casting, cutting, forming, joining, fabrication, and inspection machinery.

**ETMF 3113. Fundamental of Optics. (3)**  
Prerequisites: algebra, trigonometry, plane geometry, and physics. A phenomenological introduction to

applied optics; interactions between light and materials; properties of light; lenses and mirrors; simple optical systems; interference and diffraction; introductions to optical fibers, lasers, and holography.

**ETMF 3131. Computer Integrated Manufacturing (CIM). (3)** Automated manufacturing systems involving computers to monitor vendor input, process variations, component selection and routing, and test and evaluation of products. Applications involving integration of computer aided design (CAD) systems with computer aided manufacturing (CAM) systems.

**ETMF 3141. Industrial Applied Optical Systems. (3)** Prerequisite: ETGR 3171. The applications of electro-optical technology in manufacturing and industrial systems is investigated. The fundamentals of applied optics, laser theory and semi-conductor optical devices will be reviewed.

**ETMF 3141L. Applied Optical Systems Laboratory. (1)** Corequisite: ETMF 3141. Applications of electro-optical technology in manufacturing systems. Laboratory experiments demonstrating the use of lasers in the following manufacturing and industrial applications will be performed: cutting, machining, welding, measurement, marking, and control of processes; machine vision systems, sorting, process control, and real-time quality control; bar code systems; optical character recognition; optical data transmission.

**ETMF 3181. Digital Process Control. (3)** Prerequisite: ETMF 3164. Applications and programming of microprocessors and programmable controllers for control of manufacturing processes. Interfaces with sensors, actuators, and computer systems. Includes classroom and laboratory demonstrations.

**ETMF 3211. Topics in Precision Manufacturing. (3)** Senior seminar in selected areas of modern production of both conventional and micro-miniaturized products; surface mount technology for electronic components; manufacturing in the clean room environment; metrology; manufacture of micro-miniature mechanical systems; vacuum coating and plating systems; systems for automatic process control and product inspection.

**ETMF 3251. CIM Laboratory. (2) (W)** Experiments with computer control of processes, including numerical control and robotics. Measurement of physical variables for monitoring, controlling, and testing production operations. Application of microprocessors and microcomputers to system control and status reporting. One class hour, three lab hours per week.

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## Farsi (FARS)

**FARS 1201. Elementary Farsi I. (4)** Fundamentals of the Farsi language, including speaking, listening comprehension, reading, and writing.

**FARS 1202. Elementary Farsi II. (4)** Prerequisite: FARS 1201 or permission of department. Fundamentals of the Farsi language, including speaking, listening comprehension, reading, and writing.

**FARS 3051. Topics in Farsi. (1-3)** Study of Farsi language, culture, or literature. *May be repeated for credit with change of topic.*

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## Film Studies (FILM)

**FILM 2201. Introduction to Film. (3)** Introduction to elements of film needed for analyzing and writing about film.

**FILM 3050. Topics in Film. (3) (W)** National film histories, film analysis, film criticism, film genres. *May be repeated for credit with change of topic.*

**FILM 3051. Topics in Film. (3)** National film histories, film analysis, film criticism, film genres. *May be repeated for credit with change of topic.*

**FILM 3120. The Fundamentals of Video/Film Production. (3)** Key components: planning and preparation through post-production and presentation, including writing a simple screenplay, storyboarding, locating equipment, casting, shooting, editing, post production synchronization, and exhibition.

**FILM 3800. Directed Project in Film or Video. (1-3)** Prerequisites: FILM 2201 and FILM 3120. Individual work on a selected film project or area of film study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

**FILM 4410. Professional Internship in Film Studies. (1-6)** Prerequisites: FILM 2201; FILM 3120 or equivalent; Film Studies minor; and permission of the Director of the Film Studies program and student's major advisor. Faculty-supervised field and/or research experience in a cooperating professional (e.g., business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization.

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## Finance (FINN)

**FINN 3000. Topics in Finance. (3)** Prerequisite: Junior standing. Topics from the area of finance. *May be repeated for credit with change of topic.*

**FINN 3120. Financial Management. (3)** Prerequisites: MATH 1120, STAT 1220; ACCT 2121, 2122, ECON 2101, 2102; INFO 2130; Business major; and Junior standing. Principles and problems of financial aspects of managing capital structure, least-cost asset management, planning and control. Computer application is included where appropriate.

**FINN 3221. Financial Institutions and Markets. (3)** Prerequisite: FINN 3120. A study of financial institutions and money and capital markets, and the role of financial institutions in the intermediation process. Special emphasis is on the comparative financial policies of financial institutions considered in the context of their market environments.

**FINN 3222. Investments. (3)** Prerequisite: FINN 3120. Major topics are security analysis and portfolio management. The viewpoint is that of the investment professionals who are concerned with the evaluation of individual securities and management of security portfolios.

**FINN 3223. International Financial Management. (3)** Prerequisite: FINN 3120. Viewpoints are those of the senior financial officer of an international corporation and of the international officer of a commercial bank. Topics include: the financing of exports and imports, financing of foreign operations, consideration of foreign exchange rates, and the impact of accounting procedures on financial management.

**FINN 3224. Applied Business Finance. (3)** Prerequisite: FINN 3120. Case studies of the theories and techniques of business finance as they relate to the goal of the financial manager; the maximization of the firm value. Topics include: financial statement analysis, valuation, financial instruments, capital structure, and capital budgeting.

**FINN 3225. Commercial Bank Management. (3)** Prerequisite: FINN 3120. A study of sound and efficient techniques for the management of commercial banks. Topics include: industry structure, administrative organization, and management of assets, liabilities and capital.

**FINN 3226. Financial Theory and Practice. (3)** Prerequisite: FINN 3120. Modern financial theory and its applications, including risk theory, market equilibrium asset pricing models, efficient market

theory, capital structure theory and applications (including issues surrounding financial distress and bankruptcy), dividend policy, agency problems, informational asymmetry, advanced topics in capital budgeting, and leasing.

**FINN 3261. Real Estate Finance. (3)** Prerequisite: FINN 3120. The fundamentals of real estate finance and investment. Topics include: real estate capital markets, mortgage markets, mortgage securitization, real estate contracts and leases, investment analysis, valuation and appraisal, return and risk considerations, and the effects of debt financing, taxation and government regulations on real estate investment.

**FINN 3271. Principles of Risk Management and Insurance. (3)** Prerequisite: INFO 2130, Junior standing, business major or permission of department. A study of the different types of non-speculative risks faced by individuals and businesses and the possible methods of treating such risks. An examination of the specific application of these methods with regard to life, health, property, casualty, and liability contracts.

**FINN 3272. Life Insurance and Professional Financial Planning. (3)** Prerequisite: INFO 2130, Junior standing, business major, or permission of department. Covers the uses of life insurance, annuities, health insurance, and Social Security in the context of financial planning. Explains the integration of social security benefits, employer-provided benefits, and individually purchased life insurance and investments into comprehensive financial plans. Students successfully completing this course should understand the need for the main techniques of financial planning in contemporary U.S. society.

**FINN 3273. Property and Casualty. (3)** Prerequisite: INFO 2130, Junior standing, business major, or permission of department. Involves an analysis of the need of businesses and individuals for property and casualty insurance and the nature of such coverage. An examination of property and casualty insurance products is included, with an emphasis on the study of case law, the use of contracts and contract language underwriting procedures, actuarial science, reinsurance, accounting, non-insurance risk transfer, and claims handling.

**FINN 3275. Advanced Risk Management. (3)** Prerequisites: FINN 3271 (or permission of department chair). Provides an in-depth analysis of techniques that firms use to handle non-speculative pure risks. Risk handling devices and how they are applied to business problems are discussed. Some of the techniques examined include self-insurance, captives, financial instruments and retention. Included is an analysis of loss data and how it can be utilized to select

a risk handling technique.

**FINN 3276. Employee Benefits. (3)** Prerequisites: INFO 2130, Junior standing, and a business major. Provides an analysis of group plans (e.g., medical, life, disability, and retirement), stock options, profit sharing plans and statutory benefits (e.g., workers' compensation and social security). Includes a review of legislation affecting these plans. Non-traditional plans (e.g., child care, flex time, and wellness programs) are also examined.

**FINN 3277. Legal Aspects of Insurance. (3)** Prerequisite: FINN 3271. Provides an in-depth analysis of the impact that statutes, regulations and litigation have on risk management and insurance. Also examines the impact the courts have had on claims handling.

**FINN 3400. Finance Internship. (3)** Prerequisites: Junior or Senior in good standing and department approval. Full- or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised financial services experience. Requires 50 hours of supervised employment per hour of credit. Each student's internship program must be approved by the supervising faculty. A proposal form must be completed and approved prior to registration and the commencement of the work experience. A mid-term report and a final report to be evaluated by the supervising faculty are required. *Graded on a Pass/No Credit basis.* Grading is by the supervising faculty and in consultation with the off-campus supervisor at the internship organization. May be used to meet requirements of a major elective, up to a maximum of three credit hours.

**FINN 3500. Finance Cooperative Education and 49ership Experience. (0)** Enrollment in this course is for the University cooperative education and 49ership/service 49ership students during each semester they are working in a position. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**FINN 3800. Directed Study. (1-3)** Prerequisites:

Permission of department and Junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken.

**FINN 4158. Student Managed Investment Fund I. (3)** Prerequisites: FINN 3120 and FINN 3222. Management of an actual portfolio consisting of a portion of the University's Endowment Fund. Admission is by permission of instructor. Students selected for the course are required to take FINN 4159.

**FINN 4159. Student Managed Investment Fund II. (3)** Prerequisites: FINN 3120 and FINN 3222. Management of an actual portfolio consisting of a portion of the University's Endowment Fund. Admission is by permission of instructor. Student cannot enroll in this course without successfully completing FINN 4158.

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## Foreign Language Education (FLED)

**FLED 4200. Secondary Methods - Foreign Languages. (3)** Prerequisite: Completion of at least two 3000-level courses or equivalent in the target language, or permission of department of Middle, Secondary & K-12 Education. Current trends and practices in teaching foreign and second languages in the high school, with emphasis on practical applications. Addresses state-mandated competencies. Required for licensure in the teaching of French, German, or Spanish (K-12). Clinical hours required.

**FLED 4201. K-8 Methods - Foreign Languages. (3)** Prerequisite: Completion of at least two 3000-level courses or equivalent in the target language, or permission of department of Middle, Secondary & K-12 Education. Current trends and practices in teaching foreign and second languages in the elementary school and middle school (K-8), with emphasis on practical applications. Addresses state mandated competencies. Required for licensure in the teaching of French, German, or Spanish (K-12). Includes 15 hours of field experiences.

**FLED 4469. Student Teaching/Seminar: K-12 Foreign Language. (12)** Prerequisite: Permission of department for admission to student teaching, including minimum score of advanced-low on Oral Proficiency Interview (OPI). Corequisite: MDSK 4150. A planned sequence of experiences in the student's

area of language specialization (French, German, or Spanish) conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher. Students must demonstrate the competencies identified for their language. Approximately 35-40 hours per week in an assigned school setting and a series of seminars scheduled throughout the semester.

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## Francophone Studies (FRAN)

**FRAN 2200. French Civilization. (3) (W)** Cross-listed as FREN 2209. A study of the French people, past and present, with emphasis on cross-cultural contrasts in attitudes and values. Course conducted in English.

**FRAN 2050. Topics in Francophone Studies. (3)** Analysis of a selected topic related to France or to the Francophone world. Course conducted in English.

**FRAN 3001. Advanced Topics in Francophone Studies (Economy and Society). (3)** Analysis of a selected topic related to Francophone Studies. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.* Course conducted in English.

**FRAN 3002. Advanced Topics in Francophone Studies (Historical Context). (3)** Analysis of a selected topic related to Francophone Studies. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.* Course conducted in English.

**FRAN 3003. Advanced Topics in Francophone Studies (Arts and Literature). (3)** Analysis of a selected topic related to Francophone Studies. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.* Course conducted in English.

**FRAN 3004. Advanced Topics in Francophone Studies (Film). (3)** Analysis of a selected topic related to Francophone Studies. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.* Course conducted in English.

**FRAN 3005. Advanced Topics in Francophone Studies (Philosophy and Intellectual History). (3)** Analysis of a selected topic related to Francophone Studies. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.* Course conducted in English.

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## French (FREN)

**FREN 1050. Special Approaches to the Study of French. (1-6)** *May be repeated for credit with change of topic.*

**FREN 1201. Elementary French I. (4)** For students with limited or no previous experience in French. First course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in French.

**FREN 1202. Elementary French II. (4)** Prerequisite: FREN 1201 or equivalent. Second course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in French.

*All 2000-level courses except for FREN 2209 fulfill the language requirement of non-majors who are required to take one intermediate-level language course. FREN 2200 and FREN 2201 both satisfy the first semester of the Intermediate Level requirement.*

**FREN 2050. Topics in French. (1-3)** Study of French language, culture, or literature. *May be repeated for credit with change of topic.*

**FREN 2200. French for Reading Knowledge. (3)** Prerequisite: FREN 1202 or equivalent. Review of French grammar with emphasis on developing reading skills. Taught in English. Does not count for major or minor credit.

**FREN 2201. Intermediate French I. (3)** Prerequisite: FREN 1202 or equivalent. Review of grammar, with reinforcement and expansion of competence in speaking, understanding, reading, and writing, in a cultural context.

**FREN 2202. Intermediate French II. (3)** Prerequisite: FREN 2201 or permission of department. Review of grammar, with reinforcement and expansion of competence in speaking, understanding, reading, and writing, in a cultural context.

**FREN 2209. French Civilization. (3) (W)** Cross-listed as FRAN 2200. A study of the French people, past and present, with emphasis on cross-cultural contrasts in attitudes and values. Conducted in English; no knowledge of French required. Open to majors and non-majors for elective credit.

**FREN 3050. Topics in French. (1-3)** Study of French language, culture, or literature. *May be repeated for credit with change of topic.*

**FREN 3201. French Grammar and Conversation. (3) (O)** Prerequisite: FREN 2202 or permission of department. Review of French grammar and guided conversation on prepared topics. Emphasis on spoken French.

**FREN 3202. French Grammar and Composition. (3)** Prerequisite: FREN 2202 or permission of department. Review of French grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

**FREN 3203. Introduction to French Literature. (3)** Prerequisite: FREN 2202. Development of techniques for literary study through analysis of selected major works in French literature. Readings, discussions, presentations, and *explications de texte*.

**FREN 3207. French Phonetics. (3)** Prerequisite: FREN 2201 or permission of department. Study of the sounds of the French language, their production and representation by means of the International Phonetic Alphabet. Practice in reading and speaking with proper rhythm and intonation.

**FREN 3209. France Today. (3)** Prerequisite: FREN 3201 or FREN 3202, or permission of department. Contemporary France: its institutions, society, and culture.

**FREN 3210. Introduction to Business French. (3)** Prerequisite: FREN 2202 or permission of department. Introduction to spoken and written language of the French-speaking business world. Acquisition of and practice with general commercial terminology used in French for such functional business areas as economics, management, marketing, finance, and import-export.

**FREN 3800. Directed Individual Study. (1-3)** Prerequisite: Permission of department; normally open only to French majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

**FREN 4003. Studies in French Literature. (3)** Prerequisite: FREN 3201 or FREN 3202 (both recommended, and FREN 3203 is also highly recommended), or permission of department. Study of French literature. *May be repeated for credit with change of topic.*

**FREN 4005. Studies in the French Language. (3)** Prerequisite: FREN 3201 or FREN 3202 (both recommended), or permission of department. Study of French language. *May be repeated for credit with*

*change of topic.*

**FREN 4007. Studies in French Culture and Civilization. (3)** Prerequisite: FREN 3201 or FREN 3202 (both recommended), or permission of department. Study of French culture and civilization. *May be repeated for credit with change of topic.*

**FREN 4050. Topics in French. (1-3)** Prerequisites: Junior standing; UWRT 1102 or equivalent if taught in English. Study of French language, culture, or literature. May be taught in French or English. Does not count toward the major. *May be repeated for credit with change of topic.*

**FREN 4120. Advanced Business French I. (3)** Prerequisite: FREN 3210 or permission of department. Advanced studies in Business French, with intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as economics, management, and marketing.

**FREN 4121. Advanced Business French II. (3)** Prerequisite: FREN 3210 or permission of department. Advanced studies in Business French, with intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as marketing, finance, and import-export.

**FREN 4201. Survey of French Literature I. (3)** Prerequisite: FREN 3201 or FREN 3202 (both recommended). FREN 3203 also highly recommended. The major literary movements from the Middle Ages to the Enlightenment, with sample texts. Emphasis on continuity and change.

**FREN 4202. Survey of French Literature II. (3)** Prerequisite: FREN 3201 or FREN 3202 (both recommended). FREN 3203 and FREN 4201 also highly recommended. The major literary movements from the Enlightenment to the contemporary period, with sample texts. Emphasis on continuity and change.

**FREN 4410. Professional Internship in French. (1-6)** Prerequisites: FREN 3201 and FREN 3202, or equivalent and permission of department. Faculty-supervised field and/or research experience in a cooperating professional (e.g., business), educational, or community organization. Contents of internship based upon a contractual agreement among the student, department, and field organization. *Graded on a Pass/No Credit basis.*

**FREN 4800. Directed Individual Study. (1-3)** Prerequisite: Permission of department; normally open only to French majors and minors. Individual work on a selected area of study. To be arranged with the

instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

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## Geography (GEOG)

**GEOG 1101. World Regional Geography. (3)** A world regional study which emphasizes the distinctly human responses of people to various geographic situations throughout the world. The nature and development of cultural regions is studied.

**GEOG 1103. Spatial Thinking. (4)** An overview of spatial thinking fundamentals and how geospatial technology can be used to illustrate these notions. Spatial thinking combines: (1) concepts of space, (2) tools of representation, and (3) processes of reasoning, to better structure spatially explicit phenomena, and generate hypothesis to understand and explain those issues. Emphasizes various aspects of spatial thinking as a way of addressing spatially explicit phenomena applied to an array of disciplines.

**GEOG 1105. The Location of Human Activity. (3)** An examination of factors which account for the locational characteristics of economic and other human activities. The locational decision-making process is examined as a means of understanding human spatial behavior.

**GEOG 1110. Introduction to Urban and Regional Planning. (3)** An overview of current and historical trends in Urban and Regional Planning. Examines how plans and planning have been used to resolve social, environmental, and economic conflicts. Topics include: planning in industrial cities, land use planning, planning and social injustice, economic development, transportation planning, planning for global sustainability.

**GEOG 2000. Topics in Geography. (1-4)** Treatment of major topical or regional issues in Geography. *May be repeated for credit with change of topic.*

**GEOG 2102. Introduction to Cartographic Design. (4)** A study of cartography and its essential processes, with particular emphasis on the map as a communication system, the effective communication of data by means of graphical symbols, map interpretation and geovisualization, and thematic map design and production techniques.

**GEOG 2103. Elements of GIScience and Technologies. (4)** The fundamental concepts of Geographic Information Science (GIS) and its application in planning, marketing, criminal justice, health, natural resources, information technology, engineering, and others. Students learn the processes

to collect, organize, analyze, and display geographic data using GIS and are introduced to Global Positioning System (GPS) technologies. Students cover mapping basics including scale, projections, coordinate systems, data classification, and cartographic design. Culminates with group projects on selected topics within Environmental Sustainability.

**GEOG 2105. Introduction to Economic Geography. (3)** Examination of the spatial dimensions of economic activity, geographic organization and interaction of economic production, consumption, and exchange systems. Emphasis is placed on location-based factors and principles utilizing theoretical and empirical studies. A variety of geographic scales is examined, from the local to the global.

**GEOG 2110. Introduction to Geographic Research. (3)** Research design and resources in geographic research. Emphasis on spatial applications in summary statistics; spatial summaries, statistical hypothesis testing; sampling and estimation; association, correlation and regression.

**GEOG 2120. Geographic Information Systems: Survey of Applications and Techniques. (4)** Fundamentals of GIS technology and how it is being applied in such diverse fields as planning, marketing, criminal justice, political science, and engineering. Students will learn how to collect, organize, analyze, and display spatial data obtained from sources such as address geocoding, GPS, and WWW sites. Each student will complete a series of lab exercises that illustrate the typical steps in a GIS project. Three lecture hours, one two-hour lab per week.

**GEOG 2121. Introduction to Development Studies. (3)** Cross-listed as INTL 2121. The history of development as a discourse and the different economic and political models that have shaped it. Historical models and contexts of development are addressed in order to understand the evolution of development practice. Different agents and institutional architectures of development are examined as are current issues of debate in global development such as: gender and microloans; climate change politics; and the impacts of migration.

**GEOG 2125. Business Applications of GIS. (3)** Introduction to the uses of spatial data and the geographic information systems that handle them in basic business decision-making and research. Applications include geographic data presentation, consumer research, marketing, site selection and trade area analysis. Students are provided an introduction to key economic geography concepts, data availability, and experience executing GIS projects. This course is an acceptable prerequisite for GEOG 4120.

**GEOG 2140. Geography of North Carolina. (3)** A survey of the cultural, economic, urban, environmental and physical landscape of North Carolina with an emphasis on understanding the complex geographical variety that exists within a dynamic Southern state. Historic, current and future geographic patterns will be explored.

**GEOG 2150. Geography of Polar Regions. (3)** Arctic and Antarctic regions, history of exploration, the physical environment and political significance.

**GEOG 2155. Geography of the U.S. and Canada. (3)** Geographic structure of the U.S. and Canada with emphasis on physical environment and patterns of human activities.

**GEOG 2160. The South. (3)** The culture, environment, population, and economy of the southeastern U.S.; emphasis on current trends and future implications.

**GEOG 2165. Patterns of World Urbanization. (3) (O)** Introduction to cities of the world including examination of urban systems within different culture areas as well as the internal structure of different cities within the context of traditional and innovative theories of development geography.

**GEOG 2200. Introduction to Urban Studies. (3)** Cross-listed with URBS 2200. A survey course exploring the diverse perspectives and experience of North American Cities. Lectures and discussions on the development, organization, function, and meaning of urban areas, as well as the multiple and complex relationships that exist between cities and the people who live and work within them. Students who pass this course meet the requirements for the "Western Tradition" area of the LBST requirements and will not have to take an additional course to satisfy that area of General Education.

**GEOG 3000. Topics in Regional Geography. (3)** Treatment of major regional issues in geography. *May be repeated for credit with change of topic.*

**GEOG 3100. The City and Its Region. (3)** Study of the regional system of cities in terms of their size, spacing, historical evolution, functional relationships, and future prospects.

**GEOG 3105. Geography of the Global Economy. (3)** Examination of the globalization of economic activity with focus on the geographic patterns of international production, trade, and foreign direct investment, and environmental impacts of global production, as well as underlying dynamics driven by transnational

corporations and nation states within a volatile technological environment.

**GEOG 3110. Urban Political Geography. (3)** Spatial organization of metropolitan America. How metropolitan residents organize space into territorial units and the human, social and political ramifications of that organization. Spatial consequences of the most common modes of political, administrative and territorial organization.

**GEOG 3115. Urban Transportation Problems. (3) (W)** Problems associated with moving goods, people and information in urban areas. Topics include: mass transit and pollution problems.

**GEOG 3120. Fundamentals of Geographic Information Systems. (4)** Prerequisites: GEOG 1103 and GEOG 2110, or permission of instructor. Development, current state-of-the-art and future trends in geographic information processing with emphasis on data gathering, storage, and retrieval, analytical capabilities and display technologies. A laboratory component includes development and completion of an applied GIS research project. Three lecture hours, one two-hour lab per week.

**GEOG 3150. Manufacturing Geography. (3)** Factors relating to the nature, locations and development of manufacturing industries. Emphasis upon classification of manufacturers, principal areas of manufacturing and the role of manufacturing in regional development.

**GEOG 3161. Migration and Borders in a Global World. (3)** Cross-listed as INTL 3161. Even as globalization promises a world of increasing flows, borders -and their most visible manifestation as fences - are on the rise. This course focuses on the dynamics of diversifying flows of people with the multiplication of borders within and beyond countries. It explores key policy debates such as: the relationship between migration and development; increased demand for migrant workers; the upswing in migrant detention and deportation; and the Right to Freedom of Movement.

**GEOG 3162. Europe in the World. (3)** Cross-listed as INTL 3162. The shifting political, economic and cultural geographies of Europe. Addresses how current transformations in Europe influence global processes and how broader global trends translate into European societies. Topics include: the expansion and consolidation of the European Union; a 'borderless' Europe versus 'Fortress Europe'; post-socialism and post-fascism in Central and Southern Europe; economic globalization; and post-colonial immigration.

**GEOG 3190. Biogeography. (3)** Cross-listed as ESCI 3190. Prerequisite: BIOL 2120 or ESCI 1101. The patterns of life across the Earth and the causes of those patterns, with an emphasis on ecological patterns and historical patterns of biodiversity. The origin of the Earth's biological diversity and methods for conserving that biodiversity is also discussed. Emphasis on student written and oral communication.

**GEOG 3200. Land Use Planning. (3)** Land use planning, with emphasis on basic planning processes, implementation techniques and strategies, and issues confronting contemporary urban and rural planning.

**GEOG 3205. Internal Structure of the City. (3)** Integrative study of the spatial structure of cities with emphasis on land use patterns and models, transportation systems, residential concentrations, commercial activities and manufacturing zones.

**GEOG 3210. Regional Planning. (3)** Introduction to regional planning strategies and approaches developed by regional planning agencies. Urban-regional planning relationships with emphasis on techniques used in regional analysis.

**GEOG 3215. Environmental Planning. (3) (W)** Interaction and relationships between natural and human-made elements of the environment with emphasis on planning concepts and methodologies used in contemporary environmental planning.

**GEOG 3220. Renewable Energy and Regional Energy Markets. (3)** Examination of production, consumption, and distribution of energy, including traditional sources, such as oil, coal, natural gas, and nuclear energy; and renewable sources, including hydroelectric, wind, solar, and biofuels, with special attention to regional energy resources endowments. Energy markets and models are also examined with reference to environmental impacts in both domestic and international contexts.

**GEOG 3250. World Food Problems. (3)** Magnitude, consequences, major causes and potential solutions to the world's food problems.

**GEOG 3260. Medical Geography. (3)** Traditional aspects of medical geography including disease mapping, disease ecology and statistical association and more recent social scientific topics, including disease diffusion, healthcare facilities planning and spatial behavior.

**GEOG 3265. Behavioral Geography. (3) (W)** Behavioral approach to environmental decision-making, personal space, room and building geography, consumer behavior, territoriality, perception of

wilderness and natural hazards, activity space, and communication biases.

**GEOG 3500. Geography Cooperative Education and 49ership Experience. (0)** Enrollment in this course is required for the department's geography cooperative education and 49ership/service 49ership students during each semester that they are working. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**GEOG 3501. Geography Cooperative Education Seminar. (1)** This course is required of geography cooperative education students in each semester following a work assignment for presentation of geography reports on the co-op learning experience.

**GEOG 3605. Geography of Europe. (3) (W)** Explores relevant issues in contemporary Europe. Through lecture and written work, examines current trends in European political unity, economic integration, national/ethnic conflict and environmental policy from a geographical perspective.

**GEOG 4000. Topics in Geography. (3)** Prerequisite: Permission of instructor. An intensive study of topics in geography from such areas as urban, manufacturing, planning, retailing activity, transportation, political geography, and environmental geography. *May be repeated for credit with change of topic.*

**GEOG 4040. Transportation Topics. (3)** Prerequisite: Permission of department. Investigation of special topics in transportation including: transit systems, mobility and travel patterns, land use/transportation interface, air pollution, and information systems.

**GEOG 4101. Cartographic Techniques. (3)** Prerequisite: GEOG 2100. Preparation of maps, figures and charts at a professional level of competence. Techniques to be emphasized include desktop mapping, high resolution imagesetting output, and color separation techniques which include computer separations.

**GEOG 4102. Cartographic Design and Map Construction. (3)** Design process and basic map construction techniques with particular emphasis on the graphic elements of map design, planning map design, creating visual hierarchies, the uses of color, and basic mechanical color separation.

**GEOG 4103. Computer Programming for GIS Applications. (3)** Prerequisite: GEOG 2103 or permission of instructor. Software program development and scripting for GIS and mapping applications using high level programming languages. Emphasis on the design and implementation of geographic data structures and algorithms.

**GEOG 4108. Sport, Place, and Development. (3) (W)** Prerequisite: GEOG 1105. Examination of sport and its impact on the landscape of cities and communities. Implications of sport are examined in terms of urban land use, urban social structure, markets, franchise movement and expansion, urban politics, its role in defining sense of place, and its impact on the development of communities and regions.

**GEOG 4110. GIS for Non-Majors. (3)** Examines the fundamental concepts and techniques of Geographic Information System (GIS) technology and its application to social and physical sciences. Students learn processing, collecting, organizing, displaying, and analyzing geographic data from address geocoding, GPS, CD-ROM, World Wide Web, and other sources. Emphasis placed on data preparation, analysis, and presentation. Labs introduce students to ArcGIS.

**GEOG 4130. Advanced Geographic Information Systems. (4)** Prerequisite: GEOG 4120 or permission of instructor. Advanced GIS study with emphasis on (1) advanced skills for database development and management; (2) spatial analysis and modeling; and (3) Macro language programming and user interface design. Three lecture hours and a two-hour lab session each week.

**GEOG 4131. Environmental Modeling with GIS. (4)** Prerequisite: GEOG 4120 or permission of instructor. Theories and practices of modeling the environment with GIS. Topics include: types of spatial modeling frameworks; GIS data sources and measurement technologies for environmental modeling; development, calibration, and validation of environmental models; 3-dimensional modeling and visualization of physical processes; and spatial analysis of human-environment interactions.

**GEOG 4132. Spatial Modeling for Social and Economical Applications. (4)** Prerequisite: GEOG 4120 or permission of instructor. Theories and

practices of spatial modeling with social and economical applications. Topics include: overview of modeling in human geography, socioeconomic data sources, and building and evaluating spatial models. Examples of models covered in class and lab exercises include: spatial accessibility, interaction, diffusion, tipping points, segregation (simulation), geodemographic/segmentation, and Markov models (stochastic).

**GEOG 4140. Geographic Information Techniques for Community Planning. (4)** Prerequisites: GEOG 4120, one community planning course, and/or permission of instructor. Focuses on the connection between community planning and geographic information techniques under the general framework of planning support systems (PSS). It is designed to help students develop knowledge, skills, and experience in: (1) municipal geographic database handling; (2) land suitability and feasibility assessment; (3) landscape aesthetics assessment; (4) sketch planning; and (5) systematic approaches to planning. A real work project from the Charlotte region is conducted. A two-hour lab is required.

**GEOG 4150. Spatial Database Development with GPS and GIS. (4)** Prerequisite: GEOG 4120 or permission of instructor. The fundamentals of database management systems and their relevance in GIS. Emphasis placed on the effective creation, maintenance, and retrieval of data from a spatially enabled database. Topics include: relational database theory and design, entity-relationship diagrams, Structured Query Language (SQL), spatial queries, geodatabase design.

**GEOG 4155. Retail Location. (3)** Spatial attributes of retailing and related activities. Location patterns, store location research, trade area delineation and consumer spatial behavior are discussed with the goal of creating an evolutionary perspective on the industry. Methodological emphasis on data collection, manipulation, and interpretation using industry-specific software.

**GEOG 4160. The Geography of Transportation Systems. (3)** Geographical and human factors that affect the movement of goods and people from place to place. Emphasis on transportation routes and networks, commodity flow patterns, and the locational implications of freight rates.

**GEOG 4180. Web GIS. (3)** Prerequisite: GEOG 3120. Introduction to the basic knowledge of, and advances in, Internet/Web GIS. Emphasis on the principles, methods, and applications of Web- or Internet-based GIS coupled with hands-on laboratory exercises for

conducting GIS data operations, query, mapping, and spatial analysis/modeling via the Internet.

**GEOG 4209. Small Town Planning. (3)** Explores small town population dynamics, rural-urban fringe land use dynamics, and changes in small towns' community identity and sense of place. Emphasis on the issues and techniques that typify small town planning environments. Students investigate these issues via field work and data collection at municipal scales within the Charlotte region.

**GEOG 4210. Urban Planning Methods. (3)** Prerequisite: GEOG 3205 or permission of instructor. Scope and methods of urban planning. Emphasis on analytical techniques, projections, and data sources used in developing comprehensive planning tasks and strategies.

**GEOG 4215. Urban Ecology. (3)** An introduction to the emerging field of urban ecology. Explores the biological, physical, and social components of the urban ecosystem at local, regional, and global scales. Emphasis on the interplay among components and the sustainability of cities during lectures, field trips, and group discussions.

**GEOG 4216. Landscape Ecology. (3)** An introduction to landscape ecology, the study of the interplay between spatial pattern and ecological process. Lectures and in-depth group discussions focus on the fundamental and applied aspects of topics such as habitat fragmentation, animal movement in human-dominated landscapes, landscape legacies, road ecology, and landscape planning.

**GEOG 4220. Housing Policy. (3)** Prerequisites: GEOG 1105 and at least one of GEOG 2200, GEOG 2165, GEOG 3100, GEOG 3205, or GEOG 3215; or permission of instructor. Designed to provide students a comprehensive overview of U.S. housing policy while honing their research and analytical skills. Topics include: the evolution of housing policy, how the provision of housing impacts urban spatial patterns, and the past and present role of housing on regional economic development, land use planning, environmental planning, transportation infrastructure, community revitalization, and social capital.

**GEOG 4240. Geography of Knowledge and Information. (3)** Examination of the factors that influence the location of economic activities in the information age. Discussions and lectures explore the geographic aspects of the transition away from manufacturing to information processing as the primary mode of production. The transition is examined in terms of technology development, urban

and regional development, information flows, and the location of quaternary industry.

**GEOG 4255. Applied Population Analysis. (3)** Population data sources; measuring population change; elementary projection and estimation techniques; spatial sampling; migration; survey design; applications in the public and private sectors.

**GEOG 4260. Transportation Policy Formulation. (3)** Prerequisite: Permission of department. Structure of transportation policy at federal, state, and local levels including policies concerning highway financing and investments, congestion, safety, and use and development, energy, transit, and the provision of inter-city services.

**GEOG 4265. Transportation Analysis Methods. (3)** Prerequisites: Permission of department; statistics recommended. Procedures for analyzing the operation and performance of transportation systems; includes network planning models, minimum path algorithms and assignments; energy, air pollution, and activity analysis models; and research approaches, data sources, time and activity budgets, infrastructure condition and needs assessment.

**GEOG 4270. Evaluation of Transportation Impacts. (3)** Prerequisite: Permission of department. Methods and case studies for evaluating impacts and benefits of transportation investments including site-level impact analysis; project, corridor, and area scales; multi-modal evaluation and examination of mutually exclusive alternatives.

**GEOG 4310. Urban Social Geography. (3)** Prerequisites: GEOG 1105 and at least one of GEOG 2200, GEOG 2165, GEOG 3100, or GEOG 3205; or permission of instructor. Examines the reflexive relationship between society and urban space. Explores the intersection between urban geography and social theory, the evolution of city, community and personal spaces, and the relations and constructions of class, race, gender, and sexuality that shape and are shaped by the urban spaces in which we live and work.

**GEOG 4400. Internship in Geography. (3-6)** Prerequisite: Permission of department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The student can receive three to six hours credit depending on the nature and extent of the internship assignment.

**GEOG 4405. Urban Field Geography. (3)**  
Prerequisite: Six hours of urban-related undergraduate courses or permission of instructor. Intensive field studies of cities of the Carolinas, with specific emphasis on the Charlotte metropolitan area.

**GEOG 4600. Geography Professional Seminar. (1)**  
Prerequisites: GEOG 2110 and Senior standing. Examination of opportunities and key issues involved in the transition from the undergraduate degree program to professional life or continued formal education at the graduate level. Design and/or completion of essential documents to facilitate the transition including resume, professional portfolio, graduate program applications, exit survey, and assessment examination.

**GEOG 4800. Individual Study in Geography. (1-4)**  
Prerequisites: Permission of department must be obtained and credit hours established in advance; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Tutorial study or special research problems. *May be repeated for credit.*

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## Geology (GEOL)

**GEOL 1200. Physical Geology. (3)** A study of the basic geological principles and processes in the earth sciences; the earth as a planet; treatment of physical processes shaping the earth; earth materials and landforms.

**GEOL 1200L. Physical Geology Laboratory. (1)** Pre- or corequisite: GEOL 1200. Experimental study and investigation of the basic geological principles and processes in earth science; minerals, rocks, earth materials, and landforms. One lab period of three hours per week. Off-campus field trip required.

*Note: Although the laboratory and lecture sections of GEOL 1200 are taught as separate courses it is recommended that students take GEOL 1200L concurrently with GEOL 1200. Students with scheduling problems or students not fulfilling the UNC Charlotte science and technology requirements may take the lecture without the laboratory. Students fulfilling the UNC Charlotte science and technology requirement must either: (a) take GEOL 1200 and GEOL 1200L concurrently or (b) take GEOL 1200L in a semester subsequent to taking GEOL 1200.*

**GEOL 1210. Earth History. (3)** Prerequisites: GEOL 1200. The origin and evolution of the earth's major features: the beginnings and changes of the earth's continents, atmosphere, oceans, and life forms, set in the vast context of geologic time. Three hours of lecture.

**GEOL 1210L. Earth History Lab. (1)** Prerequisites: GEOL 1200 and GEOL 1200L. Pre- or corequisite: GEOL 1210. Learn basic techniques used by geologists to interpret the history of life, changing surface environments and habitats, plate tectonic movement, mountain building events, and climate changes. Hands-on investigation of rocks, fossils, geologic maps, and more. One lab period of three hours per week. Off campus field trip required.

**GEOL 2000. Topics in Geology. (1-4)** Treatment of major topical issues in Geology. *May be repeated for credit with change of topic.*

**GEOL 2020. The Planets. (3)** Spacecraft exploration over the past 50 years has revealed the diversity and complexity of the Earth's neighbors in space. This course is designed to explore the varied surface landscapes of planets and moons in the solar system and to understand the processes that created them. Topics for discussion will include the origin of the solar system, comparisons among the planetary bodies, and the processes which modify their surfaces (tectonics, volcanism, impact cratering, weather and climate, glaciations, and other processes). The spacecraft and sensors used to study planetary bodies will also be discussed.

**GEOL 2100. The Violent Earth. (3)** Volcanoes, earthquakes, hurricanes, tornadoes, floods and other catastrophic natural phenomena with emphasis on causes, effects and human adjustments.

**GEOL 3000. Selected Topics in Geology. (1-4)** Prerequisites: GEOL 1200 and GEOL 1200L; or permission of instructor. Treatment of specific topics selected from one of the fields of geology. *May be repeated for credit with change of topic.*

**GEOL 3105. The Earth's Mineral Resources: Sustainability and the Environmental Impacts of Recovery. (3)** Prerequisite: GEOL 1200. The origin, distribution, consumption rates and environmental impacts of mining and processing the Earth's mineral resources. A significant portion of class lectures promote a deeper understanding of the current oil, gas and coal industries and their relationship to the world's energy production and use. The long-term sustainability of these energy systems is also discussed.

**GEOL 3110. Minerals and Rocks. (3)** Pre- or corequisites: GEOL 1200 and GEOL 1200L. Formation processes, composition and identification of rocks and minerals in the earth's crust with important abundance or special use.

**GEOL 3115. Mineralogy. (4)** Prerequisites: GEOL 1200 and GEOL 1200L. Pre- or corequisites: CHEM 1251 and CHEM 1251L, or permission of instructor. Identification, classification and description of minerals based on physical properties, crystallography, and chemical composition. Includes diagnostic techniques for identification of common ore and rock forming minerals. Three hours of lecture and one three-hour lab per week.

**GEOL 3120L. Geochemistry Laboratory. (1)** Pre- or corequisite: GEOL 4175 or permission of instructor. Analytical methods and sample preparation techniques used by geochemists. One three hour meeting per week.

**GEOL 3124. Sedimentology. (4) (W)** Prerequisites: GEOL 1210, GEOL 1210L, and GEOL 3115; or permission of instructor. Examination of sedimentary rock features and compositions as related to origin, dispersion, deposition, diagenesis, classification and general distribution of sedimentary materials. Three hours of lecture and one three-hour lab per week.

**GEOL 3130. Structural Geology. (4)** Prerequisite: GEOL 3115 or permission of instructor. A systematic examination of the structures and processes of rock deformation. Three lecture hours, one three-hour lab per week.

**GEOL 3140. Paleontology. (3)** Prerequisites: GEOL 1200, GEOL 1200L, GEOL 1210, and GEOL 1210L; or permission of instructor. Nature of fossils, analysis of growth and variation in fossil assemblages, reconstruction of the modes of life of extinct organisms, paleobiogeography, biostratigraphy, and the fossil record of evolutionary pattern and processes.

**GEOL 3190. Environmental Geology. (3)** Prerequisites: GEOL 1200 and GEOL 1200L. Aspects of geology with direct or indirect impact on society. Topics include: slope stability, earthquake hazards, solid waste disposal, flooding, ground water problems, soil loss, sediment pollution, watershed dynamics, water and soil pollution, and radioactive waste disposal.

**GEOL 3190L. Environmental Geology Laboratory. (1)** Pre- or corequisite: GEOL 3190. Investigation of the causes, consequences, and mitigation of natural hazards and disasters. One three-hour lab per week.

**GEOL 4000. Selected Topics in Geology. (1-4)** Prerequisites: ESCI 1101, ESCI 1101L, GEOL 1200, and GEOL 1200L; or permission of instructor. In-depth treatment of specific topics selected from one of the fields of geology. *May be repeated for credit with change of topic.*

**GEOL 4100. Igneous and Metamorphic Petrology. (4)** Prerequisite: GEOL 3115. Classification, mineralogy and chemical properties of igneous and metamorphic rocks including the tectonic processes by which they formed. Lab emphasizes hand specimen and petrographic description and interpretation of rocks in thin sections.

**GEOL 4105. Geomorphology. (3)** Prerequisites: ESCI 1101 and ESCI 1101L; or GEOL 1200 and GEOL 1200L. Surficial processes and landform development as controlled by climate, tectonics, rock characteristics and time with emphasis on plate tectonic, weathering, erosion, mass wasting, surface water, groundwater, glacial, wind and coastal processes and climate change in landscape development.

**GEOL 4105L. Geomorphology Laboratory. (1)** Pre- or corequisite: GEOL 4105. Analysis of landforms and the surficial processes responsible for landform development. One lab period of 3 hours per week.

**GEOL 4110. Stratigraphy. (4)** Prerequisites: GEOL 1210, GEOL 1210L, and GEOL 3124; or permission of instructor. Vertical and horizontal relationships of layered earth materials as a key to understanding basin history, past depositional environments, and their transformation through time. Three lecture hours, three lab hours per week.

**GEOL 4115. Applied Geophysics. (4)** Prerequisites: GEOL 3115, GEOL 3130, and introductory physics or permission of instructor. Instrumental analysis of the earth's physical parameters. Study of human-induced seismic and electrical signals, and natural magnetic and gravitational fields for the purposes of locating faults, ore bodies, ground water, and other earth hazards or resources. Three hours of lecture and one three-hour lab per week.

**GEOL 4120. Geologic Mapping and Interpretation. (4)** Prerequisites: GEOL 3130 and GEOL 4100 or permission of instructor. Field and lab oriented study using principles of mineralogy, petrology and structural geology. Involves collection and resolution of field data, techniques of presenting data, development of geologic maps, and critical reviews of existing literature. Two hours of lecture, four hours of lab/field work per week.

**GEOL 4125. Geologic Summer Field Camp. (6)** Prerequisite: Junior standing and permission of instructor. Concentrated field investigation of geologic features. Data collection in the field, geologic mapping, report and map preparation and time management. Location of field camp will be specified each time course is offered.

**GEOL 4130. Optical Mineralogy. (4)** Prerequisite: GEOL 3115. Light optics theory, the behavior of plane polarized light in a solid medium. The laboratory emphasizes the use of petrographic microscope oil immersion techniques and identification of the common rock forming minerals. Three hours of lecture and one three-hour lab per week.

**GEOL 4135. Tectonics. (4)** Prerequisite: GEOL 3130 or permission of instructor. A systematic examination of the evolution and dynamics of the earth from the perspective of plate tectonics theory. Three lecture hours, and one three-hour lab per week.

**GEOL 4140. Coastal Geology. (3)** Prerequisites: GEOL 1200 and GEOL 1210; or permission of instructor. Examination of coastal environments, sediments, and wave-related processes in the present and geologic past. Major topics considered include barrier-island and salt-marsh development, sea-level fluctuations, and the relationship between human development and natural hazards. Three lecture hours per week and one two-day field trip.

**GEOL 4145. Hydrogeology. (4) (W)** Prerequisites: GEOL 1200 and GEOL 1200L or ESCI 1101 and ESCI 1101L; CHEM 1251, and CHEM 1251L; or permission of instructor. Fundamentals of physical and chemical groundwater hydrology. Principles of flow, transport, and chemical reactions in aquifers and the vadose zone, including groundwater-surface water interactions. Three hours of lecture and three hours of lab per week, with occasional field trips.

**GEOL 4165. Aqueous Geochemistry. (4)** Prerequisite: Prerequisites: CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, and GEOL 3115; or permission of instructor. Interaction of rocks, minerals, and gases with water under natural conditions, including an overview of the compositions of natural waters from a variety of environmental and geologic settings emphasizing a rigorous thermodynamic approach to understanding water-rock interactions. Three hours of lecture, and three hours of lab per week.

**GEOL 4175. Geochemistry. (3)** Prerequisites: GEOL 1200, GEOL 1200L, CHEM 1251, and CHEM 1251L; or permission of instructor. Geochemical survey of origin, evolution, and present composition of the Earth.

**GEOL 4400. Internship in Geology. (3-6)** Prerequisite: Permission of department. Research and/or work experience designed to be a logical extension of a student's academic program. Students must apply to the department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the

internship will complement his or her academic program. Students may receive three to six hours credit depending on the nature and extent of the internship assignment.

**GEOL 4410. Applied Soil Science. (4)** Prerequisites: GEOL 3115, GEOL 3124, and ESCI 4210; or permission of instructor. Students read and discuss current literature pertaining to the application of soils to various fields of research such as surficial processes, active tectonics, ecology, stratigraphy, archaeology, and environmental assessment. Topics covered will vary depending on the interests of the students. Students will create and execute a semester-long soils-based field or laboratory research project of their choosing. Three hours seminar, three hours field or lab each week.

**GEOL 4800. Individual Study in Geology. (1-4)** Prerequisites: Permission of department and credit hours established in advance; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Tutorial study or special research problems. *May be repeated for credit with change of topic.*

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## German (GERM)

**GERM 1201. Elementary German I. (4)** For students with limited or no previous experience in German. First course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in German.

**GERM 1202. Elementary German II. (4)** Prerequisite: GERM 1201 or equivalent. Second course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in German.

*All 2000-level courses fulfill the language requirement of non-majors who are required to take one intermediate-level language course.*

**GERM 2201. Intermediate German I. (3)** Prerequisite: GERM 1202 or equivalent. Review of grammar; reinforcement and expansion of competence in speaking, understanding, reading, and writing, in a cultural context.

**GERM 2202. Intermediate German II. (3)** Prerequisite: GERM 2201 or permission of department. Review of grammar, composition, and conversation using film and/or readings on the culture and civilization of German-speaking countries. Students who wish to continue with advanced offerings in German are advised to complete GERM 2202.

**GERM 2210. German in the Workplace. (3)**  
Prerequisite: GERM 2201 or permission of department. Introduction to spoken and written language of the German-speaking business world. Acquisition of and practice with general commercial terminology used in German for such functional business areas as economics, management, marketing, finance, and import-export. (Alternate for GERM 2202)

**GERM 3030. Studies in German Culture. (3) (W)**  
Conducted in English. No knowledge of German required. A study of the life and thought of German-speaking people both past and present. Course topic will concentrate on a geographical area, a particular cultural institution, or a particular period. *May be repeated for credit with change of topic.*

**GERM 3050. Studies in German Literature. (3)**  
Conducted in English. No knowledge of German required. *May be repeated for credit with change of topic.*

**GERM 3150. The Holocaust through German Literature and Film. (3) (W)**  
Prerequisite for German Majors: satisfactory completion of GERM 2202 or equivalent. Conducted in English. No knowledge of German required. Through the lens of German literature and film this course examines the Holocaust and focuses on historical, moral, and aesthetic issues in its representation.

**GERM 3160. Survey of German Film. (3) (O, W)**  
Prerequisite: Sophomore standing and UWRT 1102. Introduction to major movements in German film history. Conducted in English. Lectures, group discussions, viewing of films (in whole and in part), and a variety of writing assignments. For students seeking to apply this course toward requirements for the German major or minor there is a prerequisite of four semesters of German or the equivalent and a corequisite of GERM 4050.

**GERM 3201. Advanced German Grammar, Composition, and Conversation I. (3) (O)**  
Prerequisite: GERM 2202 or GERM 2210 or permission of department. For prospective teachers of German and students who want intensive oral and written work in the language, as well as review of grammar.

**GERM 3202. Advanced German Grammar, Composition, and Conversation II. (3)**  
Prerequisite: GERM 2202 or permission of department. Review of German grammar. Intensive oral and written work in the language.

**GERM 3800. Directed Individual Study. (1-3)**

Prerequisite: Permission of department; normally open only to German majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

**GERM 4010. Periods in the History of German Literature. (3)** (a) Medieval literature, (b) Classicism, (c) Romanticism, (d) Nineteenth Century, (e) Contemporary literature. Prerequisites: two 3000-level courses or permission of department. Study of the major writers and works in a given period. Readings, lectures, and reports. *May be repeated for credit with change of topic.*

**GERM 4020. The Chief Genres in German Literature. (3)** (a) Novel, (b) Theater, (c) Lyric poetry, (d) short prose fiction. Prerequisites: two 3000-level courses or permission of department. An analysis of a major genre and its development within German literary history. Readings, lectures and reports. *May be repeated for credit with change of topic.*

**GERM 4050. Special Topics in German. (1-3)**  
Prerequisite: one 3000-level course or permission of instructor. Treatment of a special group or figure in German literature, specialized topic in German culture or language, or special problems in German conversation. *May be repeated for credit with change of topic.*

**GERM 4120. Advanced Business German I. (3)**  
Prerequisites: GERM 2210, GERM 3201, and an additional 3000- or 4000-level course (GERM 3202 recommended), or permission of department. Advanced studies in Business German, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as economics, management, and marketing.

**GERM 4121. Advanced Business German II. (3)**  
Prerequisites: GERM 2210, GERM 3201, and an additional 3000- or 4000- level course (GERM 3202 recommended), or permission of department. Advanced studies in Business German, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as marketing, finance, and import-export.

**GERM 4203. Survey of German Literature I. (3)**  
Prerequisites: two 3000-level courses or permission of department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports and class discussion on collateral readings.

**GERM 4204. Survey of German Literature II. (3)**  
Prerequisites: two 3000-level courses or permission of

department. German literature since Classicism. Book reports and discussions on collateral readings.

**GERM 4410. Professional Internship in German. (1-6)** Prerequisites: GERM 3201 and GERM 3202, or equivalent and permission of department. Faculty-supervised field and/or research experience in a cooperating professional (e.g., business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization.

**GERM 4800. Directed Individual Study. (1-3)** Prerequisite: Permission of department; normally open only to German majors and minors. Individual work on a selected area study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

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## Greek (GREK)

**GREK 1201. Elementary Ancient Greek I. (4)** Beginning survey of elementary Ancient Greek grammar through selected readings.

**GREK 1202. Elementary Ancient Greek II. (4)** Prerequisites: GREK 1201 or equivalent. Completion of the survey of elementary Ancient Greek grammar; connected readings in elementary to intermediate Biblical and Attic prose.

**GREK 3800. Directed Individual Reading. (1-3)** Prerequisite: permission of instructor. Individual work on an author or genre to be arranged with the instructor.

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## Gerontology (GRNT)

**GRNT 2100. Aging and the Lifecourse. (3) (SL)** Cross-listed as SOCY 2100. An interdisciplinary course that examines the phenomenon of aging and its consequences for society from a variety of perspectives. Students participate in lectures, discussions and service learning projects designed to give them a broad overview of the field of gerontology. Emphasis on the wide variation in the aging process and approaches to meeting the needs of the aging population.

**GRNT 2124. Psychology of Adult Development and Aging. (3)** Cross-listed as PSYC 2124. Prerequisite: PSYC 1101 with grade of C or above. Psychological development through adulthood and old age. Emphasis on processes underlying continuity and change in adulthood, including personality and socialization,

cognitive development and the psychophysiology of aging.

**GRNT 3115. Health and the Aging Process. (3)** Cross-listed as HLTH 3115. Examination of the physiologic processes of aging as a normal life experience. Study of psychological, nutritional and general health issues designed to facilitate high-level wellness.

**GRNT 3132. Aging and Culture. (3) (W)** Cross-listed as ANTH 3132. Examination of the processes of aging in various cultural contexts, with emphasis on the implications for understanding aging within American society. Application of anthropological theories and methods to the study of aging.

**GRNT 3267. Sociology of Dying, Death and Bereavement. (3)** Cross-listed as SOCY 3267. Social definitions of death, process of dying, facing death across the lifecourse, grief, bereavement, bioethical issues, impacting individuals and society.

**GRNT 3600. Senior Seminar and Field Experience in Aging. (3) (W)** Prerequisites: completion of at least 12 hours in gerontology curriculum, including GRNT 2100 and two primary electives (selected from GRNT 2124, GRNT 3115, GRNT 4110, and GRNT 4250). Capstone course for the Minor in Gerontology designed to help students apply theories, research methods, and specific intervention strategies to substantive issues, and critically examine the organizational structure of aging programs and policies. Two seminar hours and six field placement hours per week.

**GRNT 3800. Independent Study in Gerontology. (1-8)** Prerequisite: Permission of instructor and the gerontology undergraduate coordinator. Supervised individual study and/or field-based experience in a topic or area of Gerontology of particular interest to the student. *May be repeated for credit but only a total of 3 credits can be counted toward a Gerontology minor.*

**GRNT 4050. Topics in Gerontology. (1-4)** Investigation of specific issues in Gerontology, either from the perspective of a single discipline or from a multidisciplinary perspective. *May be repeated for credit with change of topic.* A total of 3 credits can be counted toward minor.

**GRNT 4110. Sociology of Aging. (3)** Cross-listed as SOCY 4110. Prerequisite: SOCY 1101 or permission of instructor. Changing characteristics, aspirations and needs of older adults and their impact upon such institutions as the family, work, the economy, politics, education and healthcare; emphasis on sociological theories of aging, contemporary research, and the analysis of specific aging policies and programs.

**GRNT 4134. Families and Aging. (3)** Cross-listed as SOCY 4134 and SOCY 4734. Theories explaining the formation and functioning of American families with emphasis on the impact of the aging of society. Examination of the current demographic trends and expectations of multigenerational families, as well as the future demands and modifications.

**GRNT 4150. Older Individual and Society. (3)** Cross-listed as SOCY 4150. Study of the social and cultural context on the lives of aging individuals in American society. Includes a focus on expectations, social interactions, and psychological well-being in the context of retirement, caregiving, and health.

**GRNT 4250. Aging Programs and Services. (3)** Examination of federal, state, and local framework of services and programs for the aging.

**GRNT 4260. Women: Middle Age and Beyond. (3)** Cross-listed as HLTH 4260 and WGST 4260. Position of older women in society and the particular problems of and issues for women as they age.

**GRNT 4270. Intergenerational Relationships and Programs. (3)** Exploration of the importance and consequences of intergenerational relationships and the range of programming currently available to encourage interaction between people of different ages.

**GRNT 4280. The Experience of Dementia. (3)** Provides an overview of Alzheimer's disease and related disorders using a person-centered perspective. Explored from the perspectives of the person diagnosed, family members and concerned friends, and both informal and formal caregivers. Students gain a holistic insight into these disorders and their implications for both individuals and society.

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## Health and Human Services (HAHS)

**HAHS 1000. Prospect for Success in Health and Human Services. (1 or 3)** Prerequisites: First-semester Freshman; and Pre-Kinesiology, Pre-Nursing, Pre-Social Work, or Pre-Public Health major. A seminar-style learning experience designed for freshmen College of Health and Human Services pre-majors to engage in the University, college, and community activities to successfully graduate within four years. Provides students with an orientation to University resources, engaging students in self-development/reflection, inquiry, goal-setting, disciplinary content, and constructing a career

trajectory in one of the professional disciplines within the college. *May not be repeated for grade replacement.*

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## Holocaust, Genocide, and Human Rights Studies (HGHR)

**HGHR 2100. Introduction to Holocaust, Genocide, and Human Rights Studies. (3)** Cross-listed as INTL 2100. Examines the Nazi Holocaust and its origins in Western thought and practice. Analyzes the psychological, cultural, and political roots of other genocides and forms of mass violence. Explores modern concepts of human rights and the role of human rights activism.

**HGHR 3050. Topics in Holocaust, Genocide, and Human Rights Studies. (3)** Study of a special topic. *May be repeated for credit with change of topic.*

**HGHR 3800. Independent Study in Holocaust, Genocide, and Human Rights Studies. (3)** Study of a special topic under supervision of a faculty member. *May be repeated for credit with change of topic.*

**HGHR 4050. Topics in Holocaust, Genocide, and Human Rights Studies. (3)** Study of a special topic. *May be repeated for credit with change of topic.*

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## History (HIST)

**HIST 1000. Topics in History. (3)** Instruction of a historical topic at an introductory level. *May be repeated for credit with change of topic.*

**HIST 1120. European History to 1660. (3)** Political and cultural developments of Western Europe from the fourth century A.D. to the Age of Absolutism.

**HIST 1121. European History Since 1660. (3)** Cross-listed as INTL 2301. European history from the Age of Absolutism to the present.

**HIST 1160. U.S. History to 1865. (3)** American history from the earliest times to 1865.

**HIST 1161. U.S. History Since 1865. (3)** American history from 1865 to the present.

**HIST 2000. Topics in U.S. History. (3)** Discussion of a topic in U.S. History. *May be repeated for credit with change of topic.*

**HIST 2001. Topics in European History. (3)** Discussion of a topic in European History. *May be repeated for credit with change of topic.*

**HIST 2002. Topics in Non-Western History. (3)** Discussion of a topic in non-Western History. *May be repeated for credit with change of topic.* Meets non-Western requirement.

**HIST 2003. Topics in Comparative History. (3)** Discussion of a topic in comparative history. *May be repeated for credit with change of topic.*

**HIST 2004. Topics in Applied History. (3)** Discussion of a topic in applied history. *May be repeated for credit with change of topic.*

**HIST 2005. Topics for Freshmen Learning Community. (3) (O)** Prerequisite: History Learning Community member and permission of instructor. Seminar based on the History Learning Community theme, in which participants acquire academic and oral expression skills by co-researching and presenting the topic at hand.

**HIST 2101. American Business History. (3)** A survey of the origins, methods, and goals of modern business enterprise. Lectures emphasize the social history of the American business community and the relation between public policy and economic growth. Discussion emphasizes current economic problems and policies.

**HIST 2105. American Slavery and Emancipation. (3)** The transformation of life and labor for African Americans from the era of North American colonization through the Civil War and Reconstruction. Emphasizes slavery as a complex system of labor exploitation and racial control, the dynamics of slave communities, slave resistance, emancipation as process, blacks as agents of their own social and economic change, and the broad meanings of slavery and freedom in American life and in world history. Coursework includes reading of primary and secondary texts.

**HIST 2110. Technology and Science in Society I: Before the Industrial Revolution. (3)** The worldwide history of science and technology from the Stone Age to the steam engine, with particular emphasis on the Scientific Revolution of the 16<sup>th</sup> and 17<sup>th</sup> centuries. Examines the impact of scientific and technological change on society and the ways in which society shaped the development of science and technology. Scientific and technical background is not a prerequisite.

**HIST 2111. Technology and Science in Society II: Since the Industrial Revolution. (3)** The history of science and technology in society from the 18<sup>th</sup> century to the present. Examines the inter-connections of science and technology with society, with particular

attention to the U.S. Designed for all students, regardless of scientific and technical background.

**HIST 2120. American Military History. (3)** A survey of the development and organization of military practice from the colonial period to the present.

**HIST 2125. Democracy in America: A Historical Perspective. (3)** Considers the history of politics and government in the United States by examining the history of American democracy in theory and practice. To what extent have American politics and government been democratic? What does the history of democracy in America suggest about the future of politics and society in the United States and the world? This course will examine the rise of parties and mass politics, machine politics and reform movements, the history of citizenship and suffrage as relates to race, ethnicity, and gender, the relationship between war and democracy, and the problem of reconciling democratic ideals with existing social and economic hierarchies.

**HIST 2130. Introduction to Historic Preservation. (3)** Techniques available in the United States to identify and preserve historically significant structures, buildings, sites, areas and objects.

**HIST 2135. Introduction to Museums and Historic Sites. (3)** Introduces students to the history and functions of museums and historic sites. Through lecture, discussion, and field trips, students learn about the role of museums and historic sites in American society.

**HIST 2140. Disease and Medicine in History. (3)** Development of medical knowledge, trends in the techniques and availability of medical and psychiatric care, impact of disease and medicine, on selected problems in world history.

**HIST 2150. U.S. Women's History to 1877. (3)** Cross-listed as WGST 2150. A survey of women's experience in the U.S. from colonization through the Civil War and reconstruction. Special emphasis on the evolution of women's public roles and the impact of class, race, and region in shaping women's lives.

**HIST 2151. U.S. Women's History since 1877. (3)** Cross-listed as WGST 2251. A survey of women's experience in the U.S. from reconstruction to the present. Special emphasis on work, family, and feminism, and the impact of class, race, and region in shaping women's lives.

**HIST 2152. European Women's and Gender History. (3)** Cross-listed as WGST 2252. An exploration of women's changing roles in European

Society and politics, covering topics of religion, work, family, and activism.

**HIST 2155. Southern Women's History. (3)** Surveys the history of women's experiences in the American South. Through readings, lectures, and discussion students will learn about the importance of race, class, and gender in shaping southern women's lives.

**HIST 2160. African American History, 1400-1860. (3)** Cross-listed as AFRS 2160. Explores the events and circumstances that brought Africans to the Americas and the experience of these peoples during the time that slavery persisted in the South. Emphasis will be upon the economic and cultural systems that created and maintained slavery in the South and constrained freedom in the North and on the responses and struggles of Africans to these systems.

**HIST 2161. African American History Since 1860. (3)** Cross-listed as AFRS 2161. Explores the African American experience from the Civil War to the present. It follows the struggle of freed slaves and free people of color to take advantage of the promise of emancipation and the changing place of African Americans in their society.

**HIST 2200. Asian Civilization. (3)** An investigation of the philosophical, religious, social, political and economic foundations of the great Asian civilizations. Emphasis will be placed on understanding those traditions that influence Asian societies today and a comparison of those traditions to Western traditions. Meets non-Western requirement.

**HIST 2201. History of Modern Asia. (3)** Cross-listed as INTL 2201. Focus on the rise of modern Asia from the period just prior to the armed intervention of Western European nations. Emphasis will be placed on the impact of imperialism, colonialism, and the rise of Asian nationalism on Asian societies. Meets non-Western requirement.

**HIST 2206. Colonial Latin America. (3)** Cross-listed as LTAM 2206. A survey of major political, economic, and cultural developments from earliest times to 1826. Meets non-Western requirement.

**HIST 2207. Modern Latin America. (3)** Cross-listed as INTL 2401. A survey of Latin American history from 1826 to the present with emphasis on the economy and society. Special attention to twentieth-century revolutions and the role of the United States in Latin America. Meets non-Western requirement.

**HIST 2210. Pre-Colonial Africa. (3)** A survey of major political, economic and religious developments

in Sub-Saharan Africa from earliest times to the early 19th century. Meets non-Western requirement.

**HIST 2211. Modern Africa. (3)** Cross-listed as INTL 2101. A survey of major developments in 19th and 20th century Sub-Saharan Africa, with emphasis on the European conquest, the colonial period, and the triumph of modern African nationalism. Meets non-Western requirement.

**HIST 2215. A History of Muslim Societies. (3)** The history of Muslim societies from the 6<sup>th</sup> century until the present times. Focuses on the following issues: Birth and expansion of Islamic faith; political, cultural, artistic, intellectual and social history of Muslim societies; relationship between the Islamic World and the Christian Europe; impact of imperialism, nationalism and modernization of Muslim societies; and the efforts to reassert Islamic identity in an era of tightening globalization. Meets non-western requirement.

**HIST 2216. The Modern Middle East. (3)** Cross-listed as RELS 2216. An introduction to the history of this important and dynamic region. Focuses on the issues that have defined the Middle East in the recent past and provides students with the historical context needed to understand the region, its peoples, and its conflicts in greater depth. Meets non-Western requirement.

**HIST 2250. Russian History from Earliest Times to 1801. (3)** Development of the Russian people, focusing upon the rise and fall of the Kievan state, the impact of the period of Tartar domination, the rise of Moscow, and the growth of the Tsarist autocracy before the reign of Alexander I.

**HIST 2251. Russian History from 1801 to 1917. (3)** Decline and fall of the Tsarist empire, focusing upon the efforts of the last four rulers to perpetuate the monarchy and upon the factors working against the effort.

**HIST 2252. Russian History from 1917 to the Present. (3)** Development of Soviet Russia, focusing upon the October 1917 Revolution, Lenin's years of rule, Stalin's rise to power, the Five Year Plan and the years since World War II.

**HIST 2260. Britain to 1688. (3)** British history with emphasis on institutional, cultural, and economic developments.

**HIST 2261. Britain Since 1688. (3)** Continuation of HIST 2260 with some treatment of the British Empire.

**HIST 2271. Modern France (1750 to the Present).** (3) A study of France, from the Enlightenment and the Revolution of 1789, across the revolutions and wars of the 19<sup>th</sup> and 20<sup>th</sup> centuries, to the present.

**HIST 2281. Modern Germany.** (3) A survey of German history in the 19<sup>th</sup> and 20<sup>th</sup> Centuries covering the emergence of a unified Germany, the Wilhelmine Empire, the Weimar Republic, the Third Reich, the two Germanys and reunification.

**HIST 2284. World War II: The European Theater.** (3) Major campaigns of World War II with emphasis upon the European theater of operations.

**HIST 2285. World War II: The Pacific Theater.** (3) A description and analytical survey of the military campaigns in the Pacific theater of operations.

**HIST 2297. History of North Carolina, 1500 to the Present.** (3) An overview of North Carolina's historical development focusing on the social, economic, and political events that have shaped the state

**HIST 2400. History Internship.** (1-3) Applied historical techniques utilizing modern methodology and experiences in off-campus institutions or on historical sites. *Graded on a Pass/No Credit basis.*

**HIST 2600. History Skills Seminar.** (3) (O, W) Prerequisites: History major or minor; and 9 credit hours of HIST courses. An introduction to, and practicum of, the skills needed for historical investigation and communication; both in written and oral formats. Students must achieve a grade of C or above to satisfy major requirements.

**HIST 3000. Topics in U.S. History.** (3) Examination of a topic in U.S. History. *May be repeated for credit with change of topic.*

**HIST 3001. Topics in European History.** (3) Examination of a topic in European History. *May be repeated for credit with change of topic.*

**HIST 3002. Topics in Non-Western History.** (3) Examination of a topic in non-Western History. *May be repeated for credit with change of topic.* Meets the History major non-Western course requirement.

**HIST 3003. Topics in Comparative History.** (3) Examination of a topic in comparative history. *May be repeated for credit with change of topic.*

**HIST 3004. Topics in Applied History.** (3) Examination of a topic in applied history. *May be repeated for credit with change of topic.*

**HIST 3010. History and Culture through Film, Non-Western.** (3) An examination of twentieth-century historical themes in cultural context through films and scholarly monographs. *May be repeated for credit with change of topic.* Meets non-Western requirement.

**HIST 3011. History and Culture through Film.** (3) An examination of twentieth-century historical themes in cultural context through films and scholarly monographs. *May be repeated for credit with change of topic.*

**HIST 3101. History of Greece.** (3) From the beginning of civilization in Greece to the 1st Century B.C.

**HIST 3102. History of Rome.** (3) From the beginning of civilization in Italy to the 5th Century A.D.

**HIST 3106. Medieval Europe.** (3) Europe from the decline of the Roman Empire (ca. 300 A.D.) to 1450. Major topics include: the spread of Christianity, the Frankish Monarchy, the Crusades, the revival of towns, the growth of centralized monarchies, and the Black Death and its consequences.

**HIST 3109. Renaissance and Reformation Europe.** (3) European history in the era of Renaissance and Reformation, 1400 to 1650, with special attention to art and comparative analysis.

**HIST 3110. The Age of Revolutions in Europe, 1789 to 1871.** (3) A study of the role of the major revolutions of the nineteenth century in the making of modern politics.

**HIST 3115. Nineteenth Century Europe, 1814 to 1914.** (3) Political developments in European history from the Congress of Vienna: liberalism, socialism, nationalism, imperialism and the diplomacy leading to World War I.

**HIST 3116. Twentieth Century Europe, 1914 to the Present.** (3) Causes and results of World War I, rise of new governments, collapse of collective security, World War II and the postwar period.

**HIST 3118. Eastern Europe After 1945.** (3) The first half of this course examines the impact of Communism on Eastern Europe, including its effects on daily life, the economy and politics. The second half covers Eastern Europe's troubled transition after 1989, looking at the difficulties this region has faced while trying to create democratic governments and market economics.

**HIST 3131. History of Sexuality.** (3) Cross-listed as WGST 3131. An exploration of the roots of our modern

attitudes toward sexuality beginning with ancient Greece and Rome, Judaism, and Christianity. Examination of changing attitudes and practices from the Enlightenment to the Victorians. Discussion of marriage, fertility control, abortion, prostitution, and homosexuality.

**HIST 3140. Irish History. (3)** History of Ireland from prehistory to the present. Course examines the roots of Ireland's present conflicts in the long history of the English-Irish interaction.

**HIST 3141. World War I. (3)** World War I from the outbreak of hostilities to the peace settlement. Impact on the combatant nations and subsequent development of the World.

**HIST 3147. The Third Reich. (3)** The origins of Nazism, the seizure of power, Hitler's domestic and foreign policy, and the collapse in World War II.

**HIST 3148. The Holocaust. (3)** Study of the roots, conception, evolution and execution of the Holocaust, and its impact on culture and society. This course uses primary sources and eyewitness accounts to examine the Shoah from the perspectives of the perpetrator, rescuer, and bystander.

**HIST 3150. Shakespeare's England. (3)** England during the century surrounding the life of William Shakespeare using literature from the period as a window through which to explore issues of political, religious, economic, and social change.

**HIST 3155. Health and Healing in Africa. (3)** An historical context for some of the major healthcare challenges facing Africa today from malaria and river blindness to Ebola and AIDS. Rather than uncritically accepting the impression of Africa as a 'land of disease,' the course traces the history, health, and healing from the pre-colonial era through the period of colonial domination, and since political independence. Meets non-Western requirement.

**HIST 3160. History of Modern China. (3)** China from 1600 to the present covering the founding of the last imperial dynasty, the arrival of the West, and China's struggle for unity in the twentieth century. Meets non-Western requirement.

**HIST 3162. Revolutionary Movements in Modern China. (3)** Examination of popular uprisings in nineteenth-century China and their relationship to China's twentieth-century revolutionary experience. Meets non-Western requirement.

**HIST 3165. History of Modern Japan. (3)** Japan from about 1600 to the present covering Japan's

intellectual, social and economic transformation from an agricultural society to an industrial power. Meets non-Western requirement.

**HIST 3169. Central Asia from 1800 to the Present. (3)** The history of Central Asia from the Russian conquest up through the collapse of the Soviet Union and the era of independence. Specific consideration is given to the former Soviet Republics of Kazakstan, Uzbekistan, Tajikistan, Kirgizstan, and Turkmenistan, as well as Afghanistan, Mongolia, and Xinjiang in China. Particular themes and topics to be addressed in this course include colonization, revolution, reform, nationalism, Islam, and international relations. Meets non-Western requirement.

**HIST 3171. Comparative Genocide. (3)** Cross-listed as INTL 3171. The term "genocide" is often used imprecisely in popular and political discourse. Through examinations of several case studies – the Armenian genocide, the Holocaust, and post-war genocides in Cambodia, Guatemala, and Rwanda, among others - this course explores the roots and the psychological, cultural, and political impacts of genocide and other forms of mass violence.

**HIST 3172. Political Repression and Rebellion in the Contemporary World. (3)** Cross-listed as INTL 3172. Modern history has given rise to various forms of repression, but no system has succeeded in extinguishing the desire for greater freedom. This course examines scholarly and popular conceptions of rebellion and other forms of collective defiance. Through the use of memoirs, contemporary accounts, and other texts, it analyzes a variety of case studies of resistance from across the world.

**HIST 3174. Resistance and Adaptation: Indian Peoples Under Spanish Rule. (3)** Cross-listed as LTAM 3274. An historical survey of the interactions of indigenous peoples of the western hemisphere with Spanish colonial authorities from the conquest era to 1825. Focuses on the indigenous peoples of Mexico, Peru, Chile, and Argentina. Meets non-Western requirement.

**HIST 3175. Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825. (3)** Cross-listed as LTAM 3275. Examines the economic, political, and cultural origins of violent conflict in colonial Latin America, culminating with an analysis of the revolutions for independence. Meets non-Western requirement.

**HIST 3176. History of Mexico. (3)** Cross-listed as LTAM 3276. A survey of Mexican history from pre-Columbian times to the present. Special emphasis will be given to the Spanish conquest, the colonial

economy, the independence period, the revolution, and relations with the United States. Meets non-Western requirement.

**HIST 3177. The Cuban Revolution. (3)** Cross-listed as LTAM 3277. An examination of the economic and political forces that led to the Cuban revolution. Significant background material from the 19th and early 20th centuries are presented in addition to an analysis of the revolution and post-revolutionary events. Meets non-Western requirement.

**HIST 3178. History of Brazil. (3)** Cross-listed as AFRS 3278 and LTAM 3278. A study of Brazilian history since 1500, with an emphasis on social and economic history. Emphasizes slavery and race relations, the emergence of export economics, rural protest movements, the effects of urbanization and industrialization, and the rise and fall of the military dictatorship. Meets non-Western requirement. .

**HIST 3179. Authoritarianism in Latin America. (3)** Cross-listed as LTAM 3279. A study of authoritarian rule and popular resistance to authoritarianism in one or more selected Latin American countries, including, but not limited to, Argentina, Brazil, and Chile. *May be repeated for credit with change of topic.* Meets non-Western requirement.

**HIST 3180. Caribbean History. (3)** Cross-listed as AFRS 3220 and LTAM 3220. Covering the sweep of history from European/indigenous contact, through the construction of a plantation regime based on African slave labor, and up to the present day, this course explores the spread of colonialism, the dynamics of slavery, and the tumult of abolition and national independence movements. The Caribbean Sea will be examined as a region, emphasizing the ties uniting the islands and the circum-Caribbean coasts. The region's past - including empire and imperial conflict, racial oppression and interaction, and international contact - and its legacies are discussed in relation to political economics, race, and contemporary culture. Meets non-Western requirement.

**HIST 3181. Afro-Latin American History. (3) (W)** Cross-listed as AFRS 3270 and LTAM 3270. Explores the African Diaspora in Latin America ranging from the Caribbean Sea to the Rio de la Plata. From slavery, to fighting for freedom in the Spanish-American Wars of Independence, to forging new notions of citizenship in twentieth century Brazil, African-descended peoples have an important place in Latin America's historical past. According special attention to regions with concentrated populations of African-descended peoples, this course reveals the vibrant history of Afro-Latin America. Meets non-Western requirement. .

**HIST 3190. Slavery, Racism, and Colonialism in the African Diaspora. (3)** Cross-listed as AFRS 3260 and LTAM 3260. Explores how race and racism, slavery, and colonialism served as principal institutions and constructs shaping the experience between Africa and the emerging African Diaspora in the New World. Students consider how the maintenance of Western social, economic, and political superiority materialized as functions of these three important historical developments. Meets non-Western requirement. .

**HIST 3201. Colonial America. (3)** The diverse and dynamic societies of colonial North America, with particular emphasis on Britain's thirteen mainland colonies. The course begins with Europe's age of discovery and exploration and ends on the eve of the imperial crisis that led to American independence. Major themes and topics include: religious and political ideals of the colonists, labor systems, economic development, and the cultural exchanges between Europeans, Africans, and Native Americans.

**HIST 3202. American Revolution, 1750-1815. (3)** The American Revolution was both a military conflict fought over the issue of colonial independence and a catalyst for sweeping political and social change. Examines the Revolution as a political, social, and military phenomenon, focusing on the transformation of political culture and the experiences of ordinary Americans.

**HIST 3203. The Antebellum U.S., 1800-1860. (3)** Political and social changes accompanying rapid economic transformation between 1800 and 1860. Emphasis on the sectional tensions between North and South.

**HIST 3211. Civil War and Reconstruction, 1860-1877. (3)** The American people in war and the postwar adjustment. Emphasis on the political, social and economic conditions of the North and South during the Civil War and Reconstruction period.

**HIST 3212. History of the South to 1865. (3)** The South from colonial origins through the Civil War. Emphasis on the political and cultural developments which ultimately led the South to secession and the creation of a distinct Southern nation in the Confederacy.

**HIST 3213. History of the South since 1865. (3)** Southern history from Reconstruction to the present. Emphasis on race and class relations as the South copes with change. Special attention is paid to the Civil Rights Movement, industrialization, and urbanization.

**HIST 3215. Southerners. (3) (W)** Prerequisites: UWRT 1101 and UWRT 1102. Explores the distinctive characteristics of Southerners through study of biographies and autobiographies. The varied backgrounds of Southerners and selected Americans from other regions are studied.

**HIST 3218. Racial Violence, Colonial Times to Present. (3)** Cross-listed as AFRS 3218. The ways in which African Americans and Caucasians used violence both as part of struggles for liberation and freedom as well as repression from the colonial period to the present in the United States. Focuses on broader processes of social, political, and cultural change and at efforts to build cooperation.

**HIST 3240. African Americans and the Legal Process. (3)** Cross-listed as AFRS 3240. Explores the unique role law has played in the African American experience, establishing the status of persons of African descent in America. Students investigate how the legal history of African Americans has shaped American race relations over the past 400 years by tracing the evolution of race, racism, and racial formations as a function of America's legal system.

**HIST 3241. United States Social History to 1860. (3) (W)** Ideas, groups, and institutions that shaped early America, with emphasis upon the changes in family, religion, community, and class.

**HIST 3242. United States Social History since 1860. (3) (W)** Ideas, groups, and institutions that evolved from the Civil War to the present, with emphasis upon the formation of modern-day American society.

**HIST 3252. United States in the 20th Century, 1932 to the Present. (3)** Political, economic, social, and intellectual aspects of American democracy from the New Deal to the Great Society. Special emphasis on the New Deal and post-New Deal reform as well as America's role in world affairs.

**HIST 3256. United States Foreign Relations, 1901 to the Present. (3)** American diplomatic history from the administration of Theodore Roosevelt to the present. Special emphasis on the interaction between domestic, economic, political and social changes, and the formulation of American foreign policy.

**HIST 3260. The United States and Latin America. (3)** Cross-listed as LTAM 3260. An examination of the complex relationship between the United States and Latin America in the nineteenth and twentieth centuries. Topics include: U.S. territorial and economic expansion, cultural imperialism, and Latin

American efforts to safeguard national sovereignty and to achieve economic development.

**HIST 3280. Blacks in Urban America. (3)** Cross-listed as AFRS 3280. African Americans have been part of the urban scene since the colonizing of the Americas. Examines the ways in which their presence in cities has both exemplified and contradicted the understanding of both urban development and race relations in America from colonial times to the present.

**HIST 3281. American Cities. (3)** Explores U.S. urban history with the city as a physical place, as a socio-political environment, and as a cultural center. Emphasis on the social developments caused by urbanization.

**HIST 3288. History of the American West. (3)** Influence of the frontier on the historical development of the U.S. Emphasis on the trans-Mississippi Western United States.

**HIST 3300. World History for Teachers. (3)** This seminar-style course enables aspiring history teachers to acquire an advanced command of World History and the ability to teach this subject using a variety of innovative teaching techniques. Students conduct in-depth topics studies, develop concrete implementation models, and assessment methods for middle and high school classroom use.

**HIST 3310. Teaching History. (3)** This interdisciplinary hands-on seminar prepares students for a career in history education. Using historical developments of the 20th century as a starting point, students acquire practical, discipline-specific didactical skills native to the history profession and develop materials on NCSCS themes at the grade level they anticipate teaching. Geared toward advanced education students and history students seeking teaching licensure.

**HIST 3800. Independent Projects in History. (3)** Prerequisite: Permission of instructor. Individual research or readings on an historical topic. *May be repeated for credit with permission of the coordinator or instructor.*

**HIST 4000. Topics in American History. (3)** Prerequisites: HIST 2600 and History major. Investigation of a topic or theme in U.S. History. Students must achieve a grade of C or above to satisfy major requirements.

**HIST 4001. Topics in European History. (3)** Prerequisite: HIST 2600 and History major. Investigation of a topic or theme in European History.

Students must achieve a grade of C or above to satisfy major requirements.

**HIST 4002. Topics in Non-Western History. (3)**  
Prerequisite: HIST 2600 and History major. Investigation of a topic or theme in Non-Western History. Meets the history major non-Western course requirements. Students must achieve a grade of C or above to satisfy major requirements.

**HIST 4003. Topics in Comparative History. (3)**  
Prerequisites: HIST 2600 and History major. Investigation of a topic or theme in Comparative History. Students must achieve a grade of C or above to satisfy major requirements.

**HIST 4004. Topics in Applied History. (3)**  
Prerequisites: HIST 2600 and History major. Investigation of a topic or theme in Applied History. Students must achieve a grade of C or above to satisfy major requirements.

**HIST 4300. Introduction to Public History. (3) (W)**  
Prerequisite: History major. An overview of the main subfields in the field of Public History. Students learn the fundamentals of Museum Studies, Historic Preservation, and other fields at the discretion of the instructor.

**HIST 4600. Senior Research Seminar. (3) (W)**  
Prerequisites: HIST 2600 with grade of C or above; HIST 4000, HIST 4001, HIST 4002, HIST 4003, or HIST 4004 with grade of C or above; and a History major. A research seminar designed around a specific topic or theme, requiring reading, analysis, discussion, peer review, and a substantial paper.

**HIST 4797. Honors Methods and Practice. (3)**  
Prerequisite: Permission of instructor. The first course in a required two-course sequence for Honors in History. Prepares students for the research and writing of an honors thesis by providing training in historiography, research methods, source development, and writing. During the course, students meet separately with their thesis advisor to craft their prospectus.

**HIST 4799. Honors Research and Thesis. (3) (W)**  
Prerequisites: HIST 4797 with grade of A, or with a grade of B and permission of the Honors Director; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. The final course in a required two-course sequence for Honors in History. It involves the preparation and presentation of an acceptable Honors thesis or its equivalent. Completion of a thesis earning a passing grade meets the requirement for HIST 4600; a grade of A is required to earn honors.

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## Public Health Sciences (HLTH)

**HLTH 2101. Healthy Lifestyles. (3)** Overview of issues related to personal health, including healthy behaviors, lifestyles, and outcomes.

**HLTH 3000. Topics in Public Health. (1-3)**  
Prerequisite: Permission of instructor. Additional prerequisites and credit hours vary with topics. Special topics for intermediate level undergraduates. *May be repeated for credit with change of topic.*

**HLTH 3101. Foundations of Public Health. (3)**  
Prerequisite: Pre-Public Health (PRPH) major, HLTH minor, or permission of instructor. Introduction to the field of public health, including its history, content areas, scope, and paradigms of professional practice.

**HLTH 3102. Comparative Healthcare Systems. (3)**  
Prerequisite: BSPH major. Examination of organizations, structures, and relationships in national and international healthcare systems and the associated financial, legal, and policy issues.

**HLTH 3103. Behavior Change Theories and Practice. (3)** Prerequisite: BSPH major. Overview of theoretical approaches to health behavior adherence and compliance, including increasing health enhancing behaviors and sustaining healthy behaviors over time.

**HLTH 3104. Research and Statistics in Health. (3)**  
Prerequisite: BSPH major. Corequisite: HLTH 3104L. Examination of the use of research methods and statistics in public health, including issues related to research design, measurement, sampling, and the application and interpretation of statistical methods.

**HLTH 3104L. Research and Statistics in Health LAB. (1).** Prerequisite: BSPH major. Corequisite: HLTH 3104. Activities designed to complement HLTH 3104. Meets once a week for 1.5 hours.

**HLTH 3105. Public Health Education and Promotion. (3)** Prerequisite: BSPH major. Overview of principles and strategies for health education in public health practice settings.

**HLTH 3115. Health and the Aging Process. (3)**  
Cross-listed as GRNT 3115. Examination of the physiologic processes of aging as a normal life experience. Study of psychological, nutritional and general health issues designed to facilitate high-level awareness.

**HLTH 3200. History of Public Health. (3)** An overview of health and illness from a population

perspective, emphasizing the social and historical contexts in which key public health events have occurred. The content provides an historical interpretation of the development of public health – including the battle against infectious disease – across time and in today's world.

**HLTH 3201. Community Engagement. (3)**  
Prerequisite: PRPH major, BSPH major, HLTH minor, or permission of instructor. Emphasizes the nuances of working with diverse communities toward a positive public health outcome. Includes an analysis of communities and partnering with community agencies to impact public health outcomes.

**HLTH 3202. Peer Health Education. (3)**  
Prerequisite: BSPH major or permission of instructor. Designed for students interested in a variety of health topics as they relate to peer education. In class, students have the opportunity to become Certified Peer Educators through The BACCHUS Network. Along with this, public speaking and program planning skills are discussed. Health topics that are discussed include alcohol awareness, tobacco awareness, sexual assault awareness, stress management, body image, LGBTQ education and sexual health. For the final project, students are asked to design and host an awareness table on a health topic of their choice.

**HLTH 3215. Social Determinants of Health and Health Disparities. (3)** An introduction and examination of key historical events and current issues related to poverty, race/ethnicity, and health disparities, including social, economic, and political issues in ethnic and racial communities, with a special emphasis on theories, concepts, and methods to address the issues.

**HLTH 4000. Special Topics in Public Health. (1-3)**  
Prerequisite: Permission of instructor. Additional prerequisites and credit hours vary with topics. Special topics for advanced undergraduates. *May be repeated for credit with change of topic.*

**HLTH 4090. International Comparative Health Systems. (3)** Cross-listed as NURS 4090. A study tour to explore the cultural, social, and healthcare systems outside the United States. Participants visit a variety of healthcare sites and attend presentations by practitioners and educators. They will have opportunities to interact with people from the host countries and visit a variety of cultural and historic sites. *May be repeated for credit with change of topic.*

**HLTH 4102. Healthcare Administration. (3)**  
Prerequisites: HLTH 3102 and BSPH major. Overview of basic concepts and issues within the administration, financing, and policy of healthcare systems.

**HLTH 4103. Environmental Health: A Global Perspective. (3)** Prerequisite (for Fall only): BSPH major or permission of instructor. Introduction to environmental and occupational health issues and their implications for individual and population health.

**HLTH 4104. Epidemiology. (3)** Prerequisite: HLTH 3101 or Junior or Senior standing; and BSPH major, HLTH minor, or permission of instructor. Introduction to basic principles and methods used in epidemiology to detect and control disease in populations.

**HLTH 4105. Program Planning and Evaluation. (3)**  
Prerequisite: HLTH 3103 and BSPH major. Corequisite: HLTH 4105L. Use of program planning and behavior change models to design and evaluate theory-based public health promotion and education initiatives.

**HLTH 4105L. Program Planning and Evaluation LAB. (1)** Prerequisites: HLTH 3103 and BSPH major. Corequisite: HLTH 4105. Activities designed to complement HLTH 4105. Meets once a week for 1.5 hours.

**HLTH 4210. Health Promotion and Risk Reduction. (3)** Overview of health promotion and risk reduction techniques, including theories, strategies, and statistics.

**HLTH 4220. Mental and Emotional Well-Being. (3)** Examination of mental and emotional health from a wellness perspective.

**HLTH 4230. Drugs and Society. (3)** Examination of use, misuses, and abuse of natural and synthetic chemicals in today's society, including prevalence, risk factors, and prevention strategies.

**HLTH 4240. Injury Prevention through the Life Span. (3)** Introduction to intentional and unintentional injuries, including prevalence, risk factors, and prevention strategies.

**HLTH 4250. Adolescent Health and Sexuality. (3)** Examination of adolescent health sexuality issues in today's society.

**HLTH 4260. Women: Middle Age and Beyond. (3)** Cross-listed as GRNT 4260 and WGST 4260. Position of older women in society and the particular problems of and issues for women as they age with special attention to health issues.

**HLTH 4270. Health Consumerism. (3)** Examination of individual health consumer issues in the health marketplace.

**HLTH 4280. Global Health Issues. (3)** Prerequisite: BSPH major, HLTH minor, or permission of instructor. Introduction to current issues in global health including disparities, root causes, and strategies for resolution.

**HLTH 4290. Health Management Information Systems. (3)** Overview of the technical, organizational, and management issues confronted by healthcare professionals in the selection, implementation, and management of healthcare information systems.

**HLTH 4400. Internship. (3) (W)** Prerequisites: BSPH major and permission of instructor. Practical experience in a public health setting that complements students' academic and professional goals. Arranged with BSPH Internship Coordinator.

**HLTH 4600. Capstone. (3) (W)** Prerequisites: BSPH major and permission of instructor. A culminating project or experience encompassing the five areas of public health: health behavior, environmental health, biostatistics, epidemiology, and health administration that complements students' academic and professional goals.

**HLTH 4800. Independent Study. (1-6)** Prerequisite: Permission of instructor. Directed individual study that may take the form of initiating, designing, and/or conducting an original community-based or research project, or critique and synthesis of existing community or research issues. *May be repeated for credit.*

**HLTH 4900. Undergraduate Research. (1-4)** Prerequisite: Permission of instructor. Opportunity for advanced undergraduate students to work on community or research projects conducted by faculty in their field of interest. *May be repeated for credit.*

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## Honors College (HONR)

**HONR 1700. Freshman Honors Colloquium. (1)** Prerequisite: Freshman standing in the University Honors Program. Introduces University Honors students to scholarship, service, and leadership opportunities in the honors program, the university, and larger community. Class activities include guest speakers, projects, and workshops. Students create a final portfolio.

**HONR 1701. War, Peace, Justice and Human Survival. (3)** Cross-listed as LBST 2101 Honors Section only. Prerequisite: Permission of the University Honors Program. The relationships between individual and local, state, and global values are examined within the context of war, peace and justice. Special emphasis is placed upon problems emergent with the

introduction of nuclear weapons and the threat of nuclear war.

**HONR 1702. Economic Welfare and International Communities. (3)** Prerequisite: Permission of the University Honors Program. Study of the impact of economic institutions on international communities. Focus on development theories, multinational institutions, international debt, and Third World response, international poverty and income distribution and the economic impact on international communities of military spending.

**HONR 1710. Levine Scholars Fall Freshman Seminar. (1)** Utilizing lectures, discussions, and group activities, this course addresses issues of personal development, transition to college, and connection to the Charlotte community. Building on the NOLS experience, participation in activities both inside and outside of the classroom provides students with the tools for self-reflection, goal setting, and utilizing University resources.

**HONR 1711. Levine Scholars Spring Freshman Seminar. (1)** Continues the development of Levine Scholarship students as campus and community leaders. Students work together on campus-wide events, develop a mentorship program for the next year's incoming Freshman class, work with community organizations, and develop their individualized plans for their summer internships and civic engagement opportunities.

**HONR 2701. Enrichment Seminar. (2)** Prerequisite: Permission of the University Honors Program. Students attend a variety of events from the visual arts and performing arts as well as special lectures. Through direct contact, this course is intended to introduce students to events, both contemporary and traditional, to which they would not otherwise be exposed. *May be repeated for credit with change of topic and coursework. Offered on a Pass/No Credit basis.*

**HONR 2710. Levine Scholars Sophomore Seminar. (1)** Immerses students in two of the critical components of the Levine Scholars Program: grant proposal writing and enhanced leadership development. Through class discussions, assigned readings, and active learning opportunities, Sophomores are given the tools to understand elements of non-profit organizations, write proposals to fund their civic engagement projects, and become student leaders.

**HONR 2750. Community Service Laboratory. (1)** Prerequisite: Permission of the University Honors Program. Investigate and demonstrate how individuals

can make a difference in the human condition. Students enrolled attend weekly seminar meetings. Relationships between the volunteer individual and community agencies served are examined within the context of problem-solving strategies and social/political justice. Impact of volunteerism upon human rights is explored. *May be repeated for credit with change of topic and coursework. Offered on a Pass/No Credit basis.*

**HONR 3700. Honors College Topics. (3)** A small seminar course taught by faculty members from different disciplines on interdisciplinary topics. *May be repeated for credit with change of topic and coursework.*

**HONR 3701. Science, Technology, and Human Values. (3)** Cross-listed as LBST 2213 Honors section only. Prerequisite: Permission of the University Honors Program. A study of historical and contemporary issues in the relationship between science and technology, on the one hand, and ethical, religious, and social concerns on the other hand.

**HONR 3702. Seminar in Cultural Values and Social Issues. (3) (W)** Prerequisite: Permission of the University Honors Program. An examination of social and cultural topics using a writing-intensive and interdisciplinary approach. *May be repeated for credit with change of topic and coursework.*

**HONR 3790. University Honors Senior Seminar. (1)** Prerequisites: Six hours of Honors coursework and permission of the University Honors Program. Seminar focuses on development of a proposal for the Honors Senior Project. Proposal submitted through Application to Candidacy process for approval by the Honors College. Seminar also includes presentations associated with preparing for graduation. *Offered on a Pass/No Credit basis.*

**HONR 3791. University Honors Senior Project. (3) (W)** Prerequisites: Six hours of Honors coursework; permission of thesis director and University Honors Committee; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Honors project directed by faculty member. Students may also present thesis ideas for group discussion and critical feedback. *May be repeated for credit.*

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## Humanities, Technology, and Science (HTAS)

**HTAS 2100. Introduction to Humanities, Technology, and Science. (3)** An introduction to ways of considering interrelationships among three of

the major dimensions of our culture: its science, its technology, and its humanistic orientation. Students taking this course are deemed to have met the requirements for the "Ethical and Cultural Critique" area of the LBST requirements and do not have to take an additional course to satisfy that area of General Education.

**HTAS 3800. Independent Study in Humanities, Technology, and Science. (3)** Study of a special topic under supervision of a faculty member. *May be repeated for credit with change of topic.*

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## International Business (IBUS)

**IBUS 3000. Topics in International Business. (3)** Prerequisites: Permission from the Director of Global Business Studies (GBS). Topics from areas of international business. This course *May be repeated for credit with change of topic.*

**IBUS 3400. International Business Internship. (3)** Prerequisites: International Business major, Junior or Senior in good standing, permission of the Director of Global Business Studies (GBS). This internship provides a meaningful work experience in a field of International Business. Internship proposals can be initiated by the student or by the Director of GBS. The internship requires 150 hours of supervised employment. Interested students should consult the Director of GBS to discuss availability of positions. An internship proposal form, available from the Director of GBS, must be completed and approved prior to registration. *Graded on a Pass/No Credit basis.* Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit.

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## Management Information Systems (INFO)

**INFO 2130. Introduction to Business Computing. (3)** Introduction of computer methods to solve business problems. Emphasis on understanding fundamental hardware and software concepts, selecting and using appropriate hardware and software needed for making various business decisions, and developing practical methods for using the computer to solve quantitative business problems. (May not be taken for upper-level credit in business, but may be taken for general University credit.)

**INFO 3000. Topics in Management Information Systems. (3)** Prerequisite: INFO 3233 with grade of C or above. Topics from the area of Management Information Systems. *May be repeated for credit.*

**INFO 3130. Management Information Systems. (3)** Prerequisites: ACCT 2121, 2122; ECON 2101, 2102; MATH 1120; INFO 2130; and STAT 1220 with grades of C or above; and Junior standing. Impact of information systems on management decision-making activities. Principles of the structure and analysis of information flows within an organization. Emphasis on database accumulation and generation, capabilities of information processing, system function (e.g., file creation, report generation, etc.) and evaluation and modification of information systems.

**INFO 3229. Business Data Communications and Information Security. (3)** Pre- or corequisite: INFO 3130 with grade of C or above. A study of the current and potential impact of computer data communications technologies and information security on business operations and productivity. Topics include: designing, planning and implementing solutions in such areas as local area networks, networked applications, and information assurance.

**INFO 3230. Enterprise Systems. (3)** Prerequisites: INFO 2130 with grade of C or above; and Junior standing or permission of department. A problem-solving based overview of enterprise systems. Through experiential learning, students understand how business processes such as sales, logistics, production, procurement, finance, accounting and human resources are supported in ERP software. Students also learn how to configure an ERP system to meet best practices.

**INFO 3231. Business Applications Development. (3)** Prerequisites: INFO 2130 with grade of C or above; and Junior standing or permission of department. A study in the development of business applications software. Course emphasizes graphical user interface development using object-oriented, event-driven programming methods and techniques with a high-level development tool such as Visual Basic or Java.

**INFO 3233. Data and Information Management. (3)** Pre- or corequisites: INFO 3130 with grade of C or above; and Junior standing or permission of department. A study of and implementation of databases for business applications. Exploration of basic concepts of design and the use of SQL to create and manipulate corporate databases.

**INFO 3234. Business Information Systems Analysis and Design. (3)** Pre- or corequisites: INFO 3231 and INFO 3233 with grades of C or above. Examination of business information systems from the perspective of the systems analyst to provide an understanding of concepts, processes and techniques as they are applied to the systems development life cycle.

Emphasis on the use of structured and object-oriented techniques to manage the complexities involved in the analysis phase of systems development.

**INFO 3236. Business Analytics. (3)** Prerequisites: Junior or Senior standing; and College of Business major or minor in good standing; or permission of department. Various data mining and business intelligence methods, such as rule-based systems, decision trees, and logistic regression. Query and reporting, online analytical processing (OLAP) and statistical analysis. Issues relating to modeling, storing, securing, and sharing the organizational data resources.

**INFO 3240. eBusiness Systems. (3)** Pre- or corequisite: INFO 3234 with grade of C or above. A study of the evolving information technologies facilitating electronic business (eBusiness) and the business practices and strategies used to compete in the new wired global marketplace. Topics include: the infrastructure for eBusiness, new business strategies and models, web design, and management strategies, and an exploration of a variety of technologies involved in eBusiness.

**INFO 3400. Management Information Systems Internship. (1-6)** Prerequisite: Junior or Senior in good standing and department approval. Full- or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Requires 50 hours of supervised employment per hour of credit. Each student's internship program must be approved by the supervising faculty. A proposal form must be completed and approved prior to registration and the commencement of the work experience. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading will be by the supervising faculty and could be in consultation with off-campus supervisor at the internship organization. *Graded on a Pass/No Credit basis.* A student who is employed with applying for this Management Information Systems internship may not earn internship credit through work for the current employer. May be used to meet requirements of a major elective, up to a maximum of three credit hours.

**INFO 3401. Management Information Systems Internship. (1-6)** Prerequisite: Junior or Senior in good standing and department approval. Full- or part time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Requires 50 hours of supervised employment per hour of credit. Each student's internship program must be

approved by the supervising faculty. A proposal form must be completed and approved prior to registration and the commencement of the work experience. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading will be by the supervising faculty and could be in consultation with off-campus supervisor at the internship organization. *Graded as a letter grade.* A student who is employed with applying for this Management Information Systems internship may not earn internship credit through work for the current employer. May be used to meet requirements of a major elective, up to a maximum of three credit hours.

**INFO 3500. Management Information Systems Cooperative Education and 49ership Experience. (0)** Prerequisite: Management Information Systems major. Enrollment in this course is required for the department's cooperative education and 49ership/service 49ership students during any semester they are working in a position. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**INFO 3800. Directed Study. (1-6)** Prerequisites: Permission of department and Junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken.

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## International Studies (INTL)

**INTL 1101. Introduction to International Studies. (3)** An introductory, interdisciplinary survey of the field of international studies. Attention will focus on the economic, geo-political and socio-cultural issues affecting relationships in an increasingly interdependent global system.

**INTL 2100. Introduction to Holocaust, Genocide, and Human Rights Studies. (3)** Cross-listed as HGHR 2100. Examines the Nazi Holocaust and its origins in Western thought and practice. Analyzes the psychological, cultural, and political roots of other genocides and forms of mass violence. Explores

modern concepts of human rights and the role of human rights activism.

**INTL 2101. Introduction to African Studies. (3)** Cross-listed as HIST 2211 and AFRS 2221. A survey of major developments in 19<sup>th</sup> and 20<sup>th</sup> century Sub-Saharan Africa, with emphasis on the European conquest, the colonial period, and the triumph of modern African nationalism.

**INTL 2121. Introduction to Development Studies. (3)** Cross-listed as GEOG 2121. The history of development as a discourse and the different economic and political models that have shaped it. Historical models and contexts of development are addressed in order to understand the evolution of development practice. Different agents and institutional architectures of development are examined as are current issues of debate in global development such as: gender and microloans; climate change politics; and the impacts of migration.

**INTL 2131. Introduction to Peace, Conflict, and Identity Studies. (3)** Cross-listed as ANTH 2131. Asks what identity is and why it matters in people's lives. Offers a cross-cultural examination of the role of different forms of identity including race, ethnicity, gender, nationalism, and class in causing and resolving conflicts. Case studies from different parts of the world are explored.

**INTL 2201. Introduction to Asian Studies. (3)** Cross-listed as HIST 2201. Focus on the rise of modern Asia from the period just prior to the armed intervention of Western European nations. Emphasis will be placed on the impact of imperialism, colonialism, and the rise of Asian nationalism on Asian societies.

**INTL 2301. Introduction to European Studies. (3)** Cross-listed as HIST 1121. European history from the Age of Absolutism to the present.

**INTL 2401. Introduction to Latin American Studies. (3)** Cross-listed as HIST 2207. A survey of Latin American history from 1826 to the present with emphasis on the economy and society. Special attention to twentieth-century revolutions and the role of the United States in Latin America.

**INTL 3000. Topics in International Studies. (1-3)** Analysis of a selected topic related to international studies. The particular topic of the course may vary from semester to semester. A student may repeat the course for credit as topics vary.

**INTL 3111. Politics and Culture in Literature. (3) (W)** An exploration of different types of political

systems across the world and the ways in which the cultures and values of those systems are reflected in literature. The relationship between politics and literature will be examined with particular reference to such topics as human rights, gender roles and war. The political systems selected for consideration will be representative of different geographic regions and philosophies.

**INTL 3112. Globalization and Culture. (3)** Cross-listed as ANTH 3112. Explores the relationship between processes of globalization and cultural change. It will consider the breakdown of the connection between lived cultural experience and territorial location. Of special interest will be issues of cultural homogenization, cultural hybridization and emergent cultural identities brought about by the flows of people, ideas and objects in the contemporary world.

**INTL 3115. Globalization and Digital Media. (3)** Cross-listed as COMM 3126. An analysis of the role and impact of digital media on globalization. Considers how the internet and social networks have changed our connection from a physical global society to a virtual culture and explores the ways in which digital communication has fostered the globalization of artistic styles, cultural forms, political relationships and economic transactions.

**INTL 3116. Cultures and Conflicts. (3)** Cross-listed as ANTH 3116. Considers historical ties, geographical inter-connections and economic relationships that underlie contemporary issues involving culture and conflict. Discusses issues of race, class, gender, religion, nationality and citizenship among variously situated population groups and the complicated issues that arise both in the international arena and inside today's multicultural societies.

**INTL 3117. Narratives and Conflicts. (3)** Cross-listed as ANTH 3117. In conflict situations, competing interpretations of the past can become part of the struggle itself as each side vies for recognition of its version of events. This course focuses on the role these stories play in the historical development of conflicts and the effects they have on efforts to resolve them. It also focuses initially on the role of narratives in the Israeli-Palestinian conflict. Students have the opportunity to explore other cases, including Northern Ireland, Bosnia, and South Africa.

**INTL 3120. Women's Studies International. (3)** Cross-listed as WGST 4120. Explores policies affecting women's lives across international borders and looks at a range of topics from divorce, marriage, violence against women and abortion to work and poverty.

**INTL 3127. Global Media. (3)** Cross-listed as COMM 3127. Examines the theories and practices of globalization as related to mediated communication and the operation of global media, its consumption and impact. Specific issues studied include global media conglomeration, global media law, media systems, and international development.

**INTL 3131. Diplomacy in a Changing World. (3)** Cross-listed as POLS 3159. Diplomacy, a means to resolve disputes between sovereign states short of war, will be analyzed through case studies drawn from historical context and through a survey of contemporary crises. The American diplomatic process will also be reviewed with particular attention to how policy is shaped, how an embassy functions and how Americans train for the professional diplomatic service.

**INTL 3135. Origins of Globalization. (3)** Cross-listed as ANTH 3135. An analysis of European colonial expansion from the 16<sup>th</sup> through the 19<sup>th</sup> centuries, emphasizing the creation of the first global systems of political, economic, and cultural interaction that form the foundation of modern globalization. Using a cross-cultural approach, the course explores the competition and conflict among the great powers and the effects of conquest and colonialism on the indigenous peoples of Africa, Asia, and the Americas.

**INTL 3136. Globalization and Resistance. (3)** Cross-listed as ANTH 3136. A cross-cultural analysis of changing patterns of resistance by indigenous peoples to the political, cultural and economic effects of globalization from the colonial period to the present. Using case studies from the Americas, Africa, and Asia, the course examines a variety of indigenous resistance strategies and movements and the socio-political dynamics that have driven them and impacted on their effectiveness.

**INTL 3137. International Human Rights. (3)** Cross-listed as POLS 3137. Introduces students to the historical foundations and current practices of the international human rights regime. Discussions center primarily on three topics: 1) the conceptual and historical origins of the international regime designed to protect human rights, 2) patterns of and explanations for human rights violations over time and space, and 3) potential international and domestic solutions to protect human rights. During the discussion of these topics, students learn about contemporary issues in human rights, as well as how theory applies to current events and individual cases.

**INTL 3151. International Political Economy. (3)** Cross-listed as POLS 3151. An analysis of the political dynamics of economic relationships among countries. Attention is focused on the political aspects of

monetary, trade and investment relationships, and the difficulties involved in coordinating policy and maintaining effective international management.

**INTL 3161. Migration and Borders in a Global World. (3)** Cross-listed as GEOG 3161. Even as globalization promises a world of increasing flows, borders -and their most visible manifestation as fences - are on the rise. This course focuses on the dynamics of diversifying flows of people with the multiplication of borders within and beyond countries. It explores key policy debates such as: the relationship between migration and development; increased demand for migrant workers; the upswing in migrant detention and deportation; and the Right to Freedom of Movement.

**INTL 3162. Europe in the World. (3)** Cross-listed as GEOG 3162. The shifting political, economic and cultural geographies of Europe. Addresses how current transformations in Europe influence global processes and how broader global trends translate into European societies. Topics include: the expansion and consolidation of the European Union; a 'borderless' Europe versus 'Fortress Europe'; post-socialism and post-fascism in Central and Southern Europe; economic globalization; and post-colonial immigration.

**INTL 3172. Political Repression and Rebellion in the Contemporary World. (3)** Cross-listed as HIST 3172. Modern history has given rise to various forms of repression, but no system has succeeded in extinguishing the desire for greater freedom. This course examines scholarly and popular conceptions of rebellion and other forms of collective defiance. Through the use of memoirs, contemporary accounts, and other texts, it analyzes a variety of case studies of resistance from across the world.

**INTL 3400. International Studies Internship. (1-3)** Prerequisite: Permission of the director. Practical experience and/or training related to the field of international studies. A minimum of 45 hours per credit.

**INTL 3800. Independent Study. (1-3)** Prerequisite: Permission of the director. Supervised investigation of an issue related to the field of international studies that is of special interest to the student and that is not covered in existing or available courses.

**INTL 4601. International Studies Seminar. (3) (O, W)** Prerequisite: advanced junior or senior class status. A capstone seminar involving in-depth research and analysis of topics of common interest to all majors, yet specific to each student's area studies concentration.

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## Computer Science (ITCS)

**ITCS 1101. Introduction to Computer Concepts. (3)** Pre- or corequisite: MATH 1100, MATH 1101, MATH 1103, MATH 1120, or MATH 1241. Introductory course that gives an overview of computer hardware and software. Primary emphasis is on productivity software (word processing, spreadsheet, and graphical presentation). These applications are taught through a series of projects/assignments. Aspects of Internet research are also covered.

**ITCS 1102. Advanced Internet Concepts. (3)** Cross-listed as ITIS 1102. Prerequisite: ITCS 1101 or permission of department. This course is an advanced study of the Internet environment. This course is designed for any student who is familiar with office productivity tools and a user of Internet technologies; it addresses advanced concepts of computer literacy. Topics include: concepts of website design and how to evaluate websites; proper use of synchronous and asynchronous communication tools (e.g., chat, email, IM); issues of copyright and cyber-ethics; using the Internet to do research; and publishing via the Internet. Other topics may be added to keep the content current and relevant. Students will complete extensive Internet oriented projects to demonstrate mastery of the skills discussed in class. (May not be taken for credit by ITIS majors.)

**ITCS 1200. Freshman Seminar (3)** Cross-listed as ITIS 1200. Prerequisite: permission of department. An introductory Information Technology course designed to assist students with the transition to college by acquainting them with the University's resources and support, exploring opportunities in the IT field, and developing a strong sense of community within the College of Computing & Informatics and the University as a whole. The development of learning skills, time management skills, and other life skills necessary for college success will be emphasized.

**ITCS 1203. Survey of Computing. (3)** Cross-listed as ITIS 1203. Introductory course that explores the broad field of computing as it applies to daily life. Topics cover computers of all sizes from handheld devices to super computers; the role of software from operating systems to applications; the software development process; issues of security and privacy on the Internet and the World Wide Web; and possible fields of study within the broad field of information technology.

**ITCS 1212. Introduction to Computer Science I. (4)** Corequisite: ITCS 1212L. Pre- or corequisite: MATH 1100, MATH 1103, MATH 1120, or MATH 1241. Introduction to algorithmic problem solving strategies and algorithm development; basic concepts and terminology of computers; study of data representation

and number systems; use of computers to implement numerical and symbolic algorithms. General programming concepts will be taught through the use of a high level language. The course grade includes the student's performance in ITCS 1212L.

**ITCS 1212L. Programming Lab I. (0)** Corequisite: ITCS 1212. Guided laboratory exercises dealing with programming mechanics; algorithm development; and the use of computers in problem solving. One laboratory period of three hours per week. Performance in ITCS 1212L will be counted as portion of the ITCS 1212 grade. *Graded on a Pass/No Credit basis.*

**ITCS 1213. Introduction to Computer Science II. (4)** Prerequisite: ITCS 1212 with grade of C or above, or permission of department. An advanced study of programming based on object-oriented concepts. This course extends the fundamentals studies in ITCS 1212. Concepts are taught by means of an in-depth study of an object-oriented language. The course grade includes the student's performances in ITCS 1213L.

**ITCS 1213L. Programming Lab II. (0)** Corequisite: ITCS 1213. Guided laboratory exercises dealing with programming mechanics; object-oriented design methodology; and the use of computers in problem solving. The lab consists of one laboratory period of three hours per week. Performance in ITCS 1213L will be counted as a portion of the ITCS 1213 grade. *Graded on a Pass/No Credit basis.*

**ITCS 1301. Introduction to the Financial Services Industry. (3)** Cross-listed as ITIS 1301. An overview of the financial services industry, including such areas as the industry components; regulatory considerations and their impact; and relations with other institutions.

**ITCS 1600. Computing Professionals. (1)** Cross-listed as ITIS 1600. This required course should be taken by all Freshman and Transfer students during their first semester in the College of Computing and Informatics. It is designed to assist with the intellectual and social transition from high school or community college to university by increasing the involvement of students in the intellectual life on campus and within the professional computing community; providing an orientation to resources available to students; promoting oral and writing skills; and enabling students to develop a personal education plan. The course has three components: a seminar series, peer group engagement, and extra-curricular engagement. Course grades are based on participation in all three components, quality of written reflections on all three components, and peer and instructor review of individual performance in peer group engagement activities, including the development of a personal

education plan. *May not be repeated for grade replacement.*

**ITCS 1610. Computing Applications Seminar. (3) (SL)** Prerequisite: MATH 1100, 1103, 1120, or 1242. A service-learning seminar course designed to emphasize the social relevance of computing. The course aims to inform non-computing specialists of computing technologies, research, and career opportunities. Seminar topics are intended to enhance disciplinary knowledge and to develop leadership skills related to using computing knowledge and skills in service to society. Emphasis placed on the basic concepts of leadership theory and its application within the computing discipline on an individual, group, and societal level. Students participate in team-based computing service-learning projects in the community, in conjunction with computing majors taking ITCS 3610. Student performance evaluation considers individual homework assignments, participation in team projects, and class participation.

**ITCS 1712. Introduction to Computer Science (Honors). (3)** Pre- or corequisites: MATH 1120 or MATH 1241; restricted to CCI Honors students, or an acceptable score on the ITCS 1712 placement test. Introduction to algorithmic problem solving using high level programming languages. Basic programming concepts (decision making, iteration, subroutines) and data types (atomic and aggregates) will be taught in C++ and Java. Advanced concepts such as pointers, references, and polymorphism will be explored.

**ITCS 2050. Topics in Computer Science. (1-3)** Prerequisite: Permission of department. Topics in computer science selected to supplement the regular course offerings at the 2000 level. *May be repeated for credit with permission of department. (Additionally, a student may register for multiple sections of the course with different topics in the same semester or in different semesters.)*

**ITCS 2116. C Programming. (3)** Prerequisite: Knowledge of any other computer programming language or permission of department. A study of the programming language C. Data types, operators, functions, program structure, file I/O, storage classes, exceptions, concurrent programming, and the preprocessor.

**ITCS 2163. Introduction to File Processing. (3)** Prerequisite: ITCS 1213 and ITCS 1213L. Concepts and techniques of structuring data on external storage devices; provides the foundation for applications of data structures and file processing techniques.

**ITCS 2175. Logic and Algorithms. (3)** Prerequisites: ITCS 1212; and MATH 1120 or MATH 1241.

Introduction to propositional calculus, predicate calculus, algorithms, logic functions, finite-state machines; logic design.

**ITCS 2181. Computer Logic and Design. (3)**  
Prerequisite: ITCS 1212 or permission of department. Logic design; logic circuits; state diagrams; Karnaugh maps; memories; tri-state devices; bus structures; and data control concepts.

**ITCS 2214. Data Structures. (3)** Prerequisites: ITCS 1213 and ITCS 1213L with grades of C or above, or permission of department. A study of the theory and implementation of abstract data types (ADTs) including stacks, queues, and both general purpose and specialized trees and graphs. Programming emphasis is on the use of an object-oriented language to implement algorithms related to the various data structures studied including creation, searching, and traversal of ADTs.

**ITCS 2215. Design and Analysis of Algorithms. (3)**  
Prerequisites: MATH 1120 or MATH 1241; ITCS 2175 or MATH 1165; and ITCS 2214. Introduction to the design and analysis of algorithms. Design techniques: divide-and-conquer, greedy approach, dynamic programming. Algorithm analysis: asymptotic notation, recurrence relation, time space complexity and tradeoffs. Study of sorting, searching, hashing, and graph algorithms.

**ITCS 2231. Introduction to Business Programming. (3)** Pre- or corequisite: INFO 2130 or permission of department. The examination of business problems, the extraction of the logic and business rules, and the relationship between business logic, programming constructs and technologies for decision support.

**ITCS 2301. Financial Services Computing Environment. (3)** Cross-listed as ITIS 2301. Prerequisite: ITCS 1301 or ITIS 1301. The objective is for the student to gain insights on several key components in financial computing environments and the enabling technologies.

**ITCS 3050. Topics in Computer Science. (1-3)**  
Prerequisite: Permission of department. Topics in computer science selected to supplement the regular course offerings at the 3000 level. *May be repeated for credit with permission of department. (Additionally, a student may register for multiple sections of the course with different topics in the same semester or in different semesters.)*

**ITCS 3110. Compiler Construction. (3)** Prerequisite: ITCS 2215. Review of programming language structures, translation, loading, execution, and storage allocation. Compilation of simple expressions and

statements. Organization of a compiler, including compile-time and run-time tables, lexical scan, syntax scan, object code generation, error diagnostics, object code optimization techniques, and overall design. Use of compiler writing languages and boot strapping.

**ITCS 3112. Design and Implementation of Object-Oriented Systems. (3)** Prerequisite: ITCS 2215. In-depth exploration of object-oriented programming and system development. Topics include: evolution of object-oriented methodology; concept of the object-oriented approach; object-oriented programming languages; object-oriented analysis and design; the design of software for reuse; and incremental software development.

**ITCS 3123. Introduction to Numerical Methods. (3)**  
Prerequisites: ITCS 2214; and MATH 1241 or MATH 1120. General concepts of scientific computing and their applications to such areas as non-linear equations, numerical integration, spline and polynomial interpolation, and initial value problems.

**ITCS 3134. Digital Image Processing. (3)**  
Prerequisites: ITCS 2214, MATH 1242, and MATH 2164 with grades of C or above. Overview of fundamentals of image acquisition, representation, enhancement, segmentation, reconstruction, analysis and recognition. Image generation, viewing and perception; image transformations using the Fourier transform; spatial operations and filtering (spatial and frequency domain); image coding; lossless and lossy compression; boundary and region based segmentation; thresholding and classification; boundary and regional image descriptors; matching and neural networks; shape numbers.

**ITCS 3143. Operating Systems. (3)** Prerequisite: ITCS 2214 or permission of department. Introduction to multiprogramming operating systems. Process synchronization and management of memory, devices, and files; performance evaluation.

**ITCS 3146. Operating Systems and Networking. (3)**  
Prerequisite: ITCS 2215 or permission of department. Introduces the fundamentals of operating systems together with the basics of networking and communications. Topics include: processes, thread, cache, memory management, virtual memory, concurrency, assembly language, network architecture and protocols, web and HTTP, UDP and TCP, internet routing.

**ITCS 3152. Symbolic Programming. (3)**  
Prerequisite: ITCS 2214. Basic concepts of symbolic programming including selected topics in artificial intelligence, heuristic searching, symbolic algebra, language parsing, and theorem proving.

**ITCS 3153. Introduction to Artificial Intelligence. (3)**  
Prerequisite: ITCS 3152 or permission of department. Basic concepts of artificial intelligence. Topics include: defining the problem as a state space search, production systems; heuristic search; basic problem-solving methods; game playing; knowledge representation using predicate logic, semantic nets, frames, and scripts; non-monotonic reasoning, statistical and probabilistic reasoning.

**ITCS 3155. Software Engineering. (3)** Prerequisite: ITCS 2215 or permission of department. The system development cycle is examined in detail from the aspects of software engineering. Current tools and techniques of software systems development -- the Agile development model, test-driven development, design patterns, and current software development frameworks -- are taught and presented in conjunction with case studies and class problems.

**ITCS 3160. Database Design and Implementation. (3)** Prerequisites: ITCS 1213 and ITCS 1213L, or permission of department. Logical and physical database organization, data models, design issues, and secondary storage considerations. Emphasis on actual participation in the design and implementation of databases.

**ITCS 3166. Introduction to Computer Networks. (3)**  
Prerequisite: ITCS 1213 and ITCS 1213L, or permission of department. Internet architecture and protocols. Distributed vs. centralized processing. Data communications; speed; capacity; media, protocols. Network architectures. Evaluation of alternatives. Case studies.

**ITCS 3170. Applied Scientific Computing. (3)**  
Prerequisites: MATH 2164 or its equivalent. Topics include: Concepts of continuous and discrete signals; continuous Fourier transform and its applications in multimedia processing; discrete Fourier transform and its applications in arts and multimedia processing; fundamentals of stochastic systems; fundamentals of ordinary differential equations; applications of differential equations in modeling; wavelet transform and its applications in music and multimedia processing; fundamentals of fractals and their application in arts and science; classification and clustering.

**ITCS 3181. Logic and Computer Systems. (3)**  
Prerequisites: ITCS 2175 and ITCS 2215. Corequisite: ITCS 3181L. Fundamental layers of digital computer systems: Switch level network structure; digital logic level including ALU, registers, buses; microprogramming level; conventional Instruction Set Architecture level and assembly language; memory

organization and architecture; pipelining and functional parallelism.

**ITCS 3181L. Computer Systems Lab and Recitation. (1)** Corequisite: ITCS 3181. Guided laboratory exercises and recitation for design of multilevel computer systems: combinational and sequential logic networks; Arithmetic and Logic Unit; pipeline design; microprogramming and assembly language practice; computer simulation practice. *Graded on a Pass/No Credit basis.*

**ITCS 3182. Computer Organization and Architecture. (3)** Prerequisite: ITCS 2181 or ECGR 2181. Machine level representation of data; von Neumann architecture; instruction sets and types; addressing types; assembly and machine language programming; control unit and microprogramming; alternate architectures.

**ITCS 3183. Hardware System Design. (3)**  
Prerequisite: ITCS 3181 or ITCS 3182, or permission of department. Design of hardwired control systems; processors and memory systems; application specific design; use of simulation tools. Laboratory intensive course.

**ITCS 3211. Computing Leaders Team Projects. (1) (SL)** Prerequisite: ITCS 3610 or ITCS 1610. A service-learning course that builds upon the leadership concepts from ITCS 3610 through focused hands-on experience with service-learning projects. Students work in teams to apply computing technologies, knowledge and skills to serve community needs. *May be repeated for elective credit.*

**ITCS 3212. Computing Leaders Team Leaders. (1) (SL)** Prerequisite: ITCS 3610 or ITCS 1610. A service-learning course that builds upon the leadership concepts from ITCS 3610 through focused hands-on experience with service-learning projects. Companion course to ITCS 3211; students in this course serve as team leaders for the team projects undertaken by students in ITCS 3211. Students lead teams to apply computing technologies, knowledge, and skills to serve community needs. *May be repeated for elective credit.*

**ITCS 3216. Introduction to Cognitive Science. (3)**  
Cross-listed as PSYC 3216. Prerequisite: PSYC 2113 or permission of department. Interdisciplinary introduction to the science of the mind. Broad coverage of such topics as philosophy of mind, human memory processes, reasoning and problem solving, artificial intelligence, language processing (human and machine), neural structures and processes, and vision.

**ITCS 3301. Introduction to the Regulatory Environment for Financial Services Firms. (3)**

Cross-listed as ITIS 3301. Prerequisite: ITCS 2301 or ITIS 2301. Using case studies, enable the student to understand the compliance and regulatory environment that currently exists for Financial Services firms.

**ITCS 3590. Computer Science Cooperative Education and 49ership Experience. (0)** This course is required of Co-op and 49ership/service 49ership students during the semester they are working. Acceptance into the Experiential Learning Program is required. Participating students pay a course registration fee for transcript notation. Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**ITCS 3610. Computing Leaders Seminar. (3) (SL)** Prerequisite: CCI major. A service-learning seminar course. Seminar topics are intended to enhance disciplinary knowledge and skills (computing technologies, research, careers) and to develop leadership skills by using computing knowledge and skills in service to society (service and civic engagement). Emphasis placed on the basic concepts of leadership theory and its application within the computing discipline on an individual, group, and societal level. Students participate in team-based computing service-learning projects in the community. Student performance evaluation considers individual homework assignments, participation in team projects, class participation, and feedback from those served.

**ITCS 3688. Computers and Their Impact on Society. (3) (O, W)** Prerequisite: Junior standing and permission of department. A study of current topics (software piracy, hacking, professional conduct) in computer science and the impact of computers on various subsets (home, government, and education) of society.

**ITCS 3690. Seminar. (1-6)** Prerequisite: Permission of department. *May be repeated for credit.*

**ITCS 3691. Seminar. (1-6)** Prerequisite: Permission of department. A continuation of ITCS 3690. *May be repeated for credit.*

**ITCS 3695. Computer Science Cooperative Education Seminar. (1)** Required of Co-op students immediately following each work assignment for presentation of reports on work done the prior semester.

**ITCS 3699. Senior Seminar. (1-3)** Prerequisites: Senior standing and permission of department. Each participant will prepare a lecture on a topic in computer science. Emphasis will be on communication of technical information as well as on content of the presentations. *May be repeated for credit.*

**ITCS 4010. Topics in Computer Science. (1-3)** Prerequisite: Permission of department. Topics in computer science selected to supplement the regular course offerings at the 4000 level. *May be repeated for credit with permission of department. (Additionally, a student may register for multiple sections of the course with different topics in the same semester or in different semesters.)*

**ITCS 4102. Programming Languages. (3)** Prerequisite: ITCS 2215. Formal definition of programming languages, including specification of syntax and semantics. Evolution of programming languages and language design principles. Structural organization, control structures, data structures and types, name visibility, binding times, parameter passing modes, subroutines, co-routines, and tasks. Functional programming, list processing, logic programming, object-oriented programming systems.

**ITCS 4107. Formal Languages and Automata. (3)** Prerequisite: MATH 1165 or ITCS 2175. Detailed study of abstract models for the syntax of programming languages and information processing devices. Languages and their representation; grammars, finite automata and regular sets; context-free grammars and pushdown automata; Chomsky Hierarchy; closure properties of families of languages; syntax analysis.

**ITCS 4120. Introduction to Computer Graphics. (3)** Prerequisites: ITCS 2214 and MATH 2164 or permission of department. Graphics hardware; raster algorithms; geometric transformations; 2D/3D interactive graphics; 3D viewing and perspective projections; color and lighting models; hidden surface removal; modeling hierarchies; fractals; curved surfaces.

**ITCS 4121. Information Visualization. (3)** Prerequisites: ITCS 1213 and 1213L or approval of the instructor. Information visualization concepts, theories, design principles, popular techniques, evaluation methods, and information visualization applications.

**ITCS 4122. Visual Analytics. (3)** Prerequisite: STAT 1220, STAT 1221, STAT 1222, STAT 2122, or STAT 2223, or approval of the instructor. Introduces the new field of visual analytics, which provides tools for the interactive visual analysis of large and complex data sets in many application areas. Topics include: visual

representation, perception, the analysis process, critical thinking, data transformations, color, interaction, and applications.

**ITCS 4123. Visualization and Visual Communication. (3)** Understanding the relatively technical field of visualization from the point of view of visual communication; this course draws connections with photography, design, illustration, aesthetics, and art. Both technical and theoretical aspects of the various fields are covered, and the connections between them are investigated.

**ITCS 4128. Programming Languages and Compilers. (3)** Prerequisite: ITCS 2214. Introduction to the concepts and techniques used in describing, defining, and implementing programming languages and their compilers. Introduction to parsing and parser construction; LL and LR grammars; syntax directed translation; data object representations; run time structures; intermediate languages; code optimization.

**ITCS 4131. Communication Network Design. (3)** Prerequisites: ITCS 3166 or permission of department. Emphasis on the design and analysis of communication networks. Application, host, and network requirements analysis; data flow analysis, models and specifications; technology choices; Interconnection mechanisms; network management and security; physical network design; addressing and routing.

**ITCS 4133. Numerical Computation Methods and Analysis. (3)** Prerequisites: ITCS 2214; and MATH 1120 or MATH 1241. Introduction to principles and techniques behind numerical methods and algorithms that underlie modern scientific and engineering applications. Roots of equations: linear systems (direct methods, LU/QR factorization, iterative methods); Eigen values and vectors; Interpolation, Approximation; Numerical Differentiation/Integration, ODEs and PDEs.

**ITCS 4141. Computer Organization and Architecture. (3)** Prerequisite: ITCS 3181 and ITCS 3182, or equivalents. Fundamentals of computer design; instruction set design, basic processor implementation techniques; pipelining; memory hierarchy; Input/Output. Cost/performance and hardware/software trade-offs.

**ITCS 4145. Parallel Computing. (3)** Prerequisites: ITCS 2214; and ITCS 3181 or ITCS 3182. Types of parallel computers, programming techniques for multiprocessor and multicomputer systems, parallel strategies, algorithms, and languages.

**ITCS 4146. Grid Computing. (3)** Prerequisites: ITCS 1213 and ITCS 1213L. Grid computing software

components, standards, web services, security mechanisms, schedulers and resource brokers, workflow editors, grid portals, grid computing applications.

**ITCS 4151. Intelligent Robotics. (3)** Prerequisites: ITCS 2214 and MATH 2164. General introduction to spatial descriptions and transformations, and manipulator position and motion. More study on robot planning, programming, sensing, vision, and CAD/CAM.

**ITCS 4152. Computer Vision. (3)** Prerequisites: ITCS 2215 and MATH 2164. General introduction to computer vision and its application. Topics include: low level vision, 2D and 3D segmentation, 2D description, 2D recognition, 3D description and model-based recognition, and interpretation.

**ITCS 4155. Software Development Projects. (3)** Prerequisites: ITCS 2215; and ITCS 3155, ITIS 3300, or ITIS 3310, or permission of instructor; and Senior Standing or permission of department. Advanced software engineering concepts. Explores the entire software development process, emphasizing requirements engineering, design, implementation, test, deployment, and evolution. Advanced topics in software engineering, such as object-oriented modeling, software architecture, architectural styles, design patterns, middleware frameworks, and programming paradigms. Students apply these concepts, along with concepts from introductory programming courses, data structures and algorithms courses, and introductory software engineering courses, to a team software development project that results in an executable software system prototype.

**ITCS 4157. Computer-Aided Instruction. (3)** Prerequisite: Permission of department. History of Computer-Aided Instruction (CAI); study of current CAI systems; development of man-machine dialogue; programming tools for CAI; information structures for computer-oriented learning; and the advantages, disadvantages, and costs of CAI.

**ITCS 4161. Intellectual Property Aspects of Computing. (3)** Prerequisite: Senior standing or permission of department. This course explores the broad field of intellectual property and the many aspects related to computing. Topics covered include software copyrights, software patents, trademarks and service marks, employment contracts, non-compete agreements, software licenses, software development contracts, preservation of digital evidence, protection of trade secrets, cyberspace law and the use of mediation in IP disputes.

**ITCS 4180. Mobile Application Development. (3)**

Cross-listed as ITIS 4180. Prerequisite: ITCS 2214 or permission of department. Mobile platforms are at the center of attention of users and organizations nowadays. Most organizations and businesses are rapidly migrating toward the cloud and need to provide a fast and easy mechanism for users to stay connected to their services. Mobile applications are the top trend nowadays given the high variety of new mobile devices and platforms such as Apple's iOS and Google's Android. In this course, students are introduced to the foundations of mobile development and its unique requirements and constraints. Students design and build a variety of mobile applications with a hands-on and project-based approach.

**ITCS 4181. Microcomputer Interfacing. (3)** Prerequisite: ITCS 3181, ITCS 3182, ECGR 3181, or permission of department. Signal conditioning, A/D conversion, noise, transmission line effects, signal processing, D/A conversion and serial/parallel interfaces.

**ITCS 4230. Introduction to Game Design and Development. (3)** Prerequisite: ITCS 2215. Basic concepts and techniques for electronic game design and development. Topics include: game history and genres, game design teams and processes, what makes a game fun, level and model design, game scripting and programming including computer graphics and animation, artificial intelligence, industry issues, and gender and games.

**ITCS 4231. Advanced Game Design and Development. (3)** Prerequisite: ITCS 4230. Advanced concepts and techniques for electronic game design and development. A project-centered course where students explore complex gameplay and interactivity. Explores topics from the introductory course in more depth, such as: applying software engineering techniques to developing games, advanced game programming and scripting, networking, graphics, physics, audio, game data structures and algorithms, and artificial intelligence.

**ITCS 4232. Game Design and Development Studio. (3)** Prerequisite: ITCS 3155, ITCS 4120, ITCS 4231, and one approved game elective, or permission of instructor; and Senior standing or permission of department. Application of advanced concepts and techniques for electronic game design and development. Teams use engineering techniques to incorporate game programming and scripting, networking, graphics, physics, audio, game data structures and algorithms, and artificial intelligence into an electronic game. Individuals develop a complete portfolio of prior work and the course project.

**ITCS 4235. Game Engine Construction. (3)** Prerequisite: ITCS 4120 or permission of department. Introduction to principles and techniques behind modern computer and console game engines. Graphics Rendering Pipeline (transformations, lighting, shading); 2D/3D Texture Mapping; Image Based Rendering; Spatial Structures and Acceleration Algorithms; Level of Detail; Collision Detection, Culling and Intersection Methods; Vertex/Pixel Shaders; Pipeline Optimization; Rendering Hardware.

**ITCS 4236. Artificial Intelligence for Computer Games. (3)** Prerequisite: ITCS 3153. Application of advanced concepts and techniques in artificial intelligence for electronic game design and development. An investigation of the artificial intelligence techniques necessary for an agent to act, or appear to act, intelligently in interactive virtual worlds. Topics include: uncertainty reasoning, machine learning, perception, knowledge representation, search, and planning. Emphasis is on implementation and experimentation with the goal of building robust intelligent agents in interactive entertainment domains. Elements of multi-agent collaboration and the use of cognitive architectures in interactive computer games are also discussed.

**ITCS 4237. Audio Processing for Entertainment Computing. (3)** Prerequisite: MATH 1242, MATH 2164, and ITCS 2215 or equivalents. Introduction to the principles and applications of audio (digital signal) processing focusing on entertainment domains. Topics include: analysis of signals, transforms, digital filter design techniques, audio engine development, file encoding/decoding, spatial sound rendering, optimization, and advanced audio techniques.

**ITCS 4490. Professional Internship. (0-6)** Cross-listed as ITIS 4490. Prerequisite: Department approval. Full- or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Each student's internship program must be approved by the supervising faculty. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading by the supervising faculty in consultation with off-campus supervisor at the internship organization. *May be repeated but a maximum of six credit hours only may be used to meet a major requirement such as a major elective. Any credit above the maximum of six hours may only be used as free electives.*

**ITCS 4640. Financial Services Informatics Industry Foundations Capstone I. (3)** Cross-listed as ITIS 4640. Prerequisite: Senior standing. An individual or group project in the theory, teaching, or application of

Financial Services Informatics under the direction of a faculty member. Projects must be approved before they may be initiated.

**ITCS 4641. Financial Services Informatics Industry Foundations Capstone II. (3)** Cross-listed as ITIS 4641. Prerequisite: ITCS/ITIS 4640. A continuation of ITCS/ITIS 4640.

**ITCS 4650. Senior Project I. (3)** Prerequisites: Senior standing and two ITCS/ITIS 3xxx/4xxx courses with grades of C or above, or permission of department. An individual or group project in the teaching, theory, or application of computer science under the direction of a faculty member. Projects must be approved by the department before they can be initiated.

**ITCS 4651. Senior Project II. (3)** Prerequisite: ITCS 4650. A continuation of ITCS 4650.

**ITCS 4681. Senior Design I. (3)** Prerequisites: Senior standing and two ITCS/ITIS 3xxx/4xxx courses with grades of C or above, or permission of department. An individual or group computer engineering design project under the direction of a faculty member. Projects must be approved by the department before they can be initiated.

**ITCS 4682. Senior Design II. (3)** Prerequisite: ITCS 4681. A continuation of ITCS 4681.

**ITCS 4990. Undergraduate Research. (3)** Prerequisite: Permission of department. Undergraduate research as part of a joint undergraduate/graduate research project using existing research laboratory facilities and materials. *May be repeated for credit up to 6 credits.*

**ITCS 4991. Undergraduate Thesis. (3)** Prerequisites: ITCS 4155, ITCS 4232, ITCS 4650, ITCS 4681, or ITCS 4990; permission of department; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Students explore a subject in computer science chosen for thesis research and present a written thesis to their thesis committee consisting of the thesis advisor and at least two other faculty members.

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## Software and Information Systems (ITIS)

**ITIS 1102. Advanced Internet Concepts. (3)** Cross-listed as ITCS 1102. Prerequisite: ITCS 1101 or permission of department. Advanced study of the Internet environment. Designed for any student who is

familiar with office productivity tools and a user of Internet technologies; it addresses advanced concepts of computer literacy. Topics include: concepts of website design and how to evaluate websites; proper use of synchronous and asynchronous communication tools (e.g., chat, email, IM); issues of copyright and cyber-ethics; using the Internet to do research; and publishing via the Internet. Other topics may be added to keep the content current and relevant. Students complete extensive Internet-oriented projects to demonstrate mastery of the skills discussed in class. May not be taken for credit by ITIS majors.

**ITIS 1200. Freshman Seminar. (3)** Prerequisite: Permission of department. An introductory Information Technology course designed to assist students with the transition to college by acquainting them with the University's resources and support, exploring opportunities in the IT field, and developing a strong sense of community within the College of Computing and Informatics and the University as a whole. The development of learning skills, time management skills, and other life skills necessary for college success will be emphasized.

**ITIS 1203. Survey of Computing. (3)** Cross-listed as ITCS 1203. Introductory course that explores the broad field of computing as it applies to daily life. Topics cover computers of all sizes from handheld devices to super computers; the role of software from operating systems to applications; the software development process; issues of security and privacy on the Internet and the World Wide Web; and possible fields of study within the broad field of information technology.

**ITIS 1210. Introduction to Web-Based Information Systems. (3)** Introductory course in developing Web pages for both majors and non-majors. Topics include: an introduction to the mechanisms by which the Internet and the World Wide Web operate, general concepts related to Web-based information systems, the design and construction of Web infrastructure including authoring tools, domain registration, legal and ethical considerations, and basic Web security.

**ITIS 1212. Introduction to Media Programming. (3)** Java programming.

**ITIS 1212. Introduction to Media Programming Lab. (1)** Corequisite: ITIS 1212. Java programming lab.

**ITIS 1301. Introduction to the Financial Services Industry. (3)** Cross-listed as ITCS 1301. An overview of the financial services industry, including such areas as the industry components; regulatory considerations and their impact; and relations with other institutions.

**ITIS 1350. eScience. (4)** Corequisite: ITIS 1350L. This course introduces the application of computational methods to scientific exploration and discovery in the natural sciences. Examples include modeling the spread of viruses, predator-prey relationship, the carbon cycle, and fish schooling. Both theory and practice of computational simulation and modeling techniques are examined as tools to support the scientific method. No computer programming knowledge is required. The course grade includes the student's performance in ITIS 1350L. Must be taken concurrently with ITIS 1350L.

**ITIS 1350L. eScience Laboratory. (0)** Corequisite: ITIS 1350. Laboratory exercises that introduce computational tools and techniques that support scientific exploration and discovery in the natural sciences. One three hour laboratory per week. No programming experience is required. Performance in ITIS 1350L will be counted as a portion of the ITIS 1350 grade. Must be taken concurrently with ITIS 1350. *Graded on a Pass/No Credit basis.*

**ITIS 1600. Computing Professionals. (1)** Cross-listed as ITCS 1600. This required course should be taken by all Freshman and Transfer students during their first semester in the College of Computing and Informatics. It is designed to assist with the intellectual and social transition from high school or community college to university by increasing the involvement of students in the intellectual life on campus and within the professional computing community; providing an orientation to resources available to students; promoting oral and writing skills; and enabling students to develop a personal education plan. The course has three components: a seminar series, peer group engagement, and extra-curricular engagement. Course grades are based on participation in all three components, quality of written reflections on all three components, and peer and instructor review of individual performance in peer group engagement activities, including the development of a personal education plan. *May not be repeated for grade replacement.*

**ITIS 2110. IT Infrastructure I: Design and Practice. (3)** Prerequisite: Sophomore standing or permission of department. Corequisite: ITIS 2110L. This course covers basic concepts for IT infrastructure systems administration such as networking administration (e.g., DNS configuration, router configuration, firewall setup, and web server configurations), operating system administration (e.g., account and privilege management, and service management). The course grade includes the student's performance in ITIS 2110L.

**ITIS 2110L. IT Infrastructure I: Design and Practice**

**Lab. (0)** Corequisite: ITIS 2110. Guided laboratory exercises dealing with IT Infrastructure concepts and equipment. Performance in ITIS 2110L will be counted as portion of the ITIS 2110 grade. *Graded on a Pass/No Credit basis.*

**ITIS 2211. Ethical Issues in Personal, Professional, and Public Life: Technology. (3)** Prerequisite: CCI major. An analysis of the conceptual tools needed to make informed, responsible judgments based on the ability to think critically and knowledgeably about issues of personal, professional, and public ethics and morality. The study of a variety of ethical views and ethical issues. Successful completion of the course satisfies the LBST 2211 requirement for General Education.

**ITIS 2300. Web-Based Application Development. (3)** Prerequisite: Sophomore standing or permission of department. Basic concepts for developing interactive web based applications; HTML, client side scripting, server side scripting, user interface design considerations, information security and privacy considerations, system integration considerations. Students will be required to develop working prototypes of web-based applications.

**ITIS 2301. Financial Services Computing Environment. (3)** Cross-listed as ITCS 2301. Prerequisite: ITCS/ITIS 1301. The objective is for the student to gain insights on several key components in financial computing environments and the enabling technologies.

**ITIS 3100. Introduction to IT Infrastructure Systems. (3)** Prerequisite: ITIS 2300. The methodologies, tools, and technologies that are important for understanding various IT infrastructure systems such as file storage services, email services, and web services. Focus placed on understanding widely-used network infrastructure services and systems, and acquiring basic knowledge in design practices and management of such systems. *Can serve as a prerequisite course for ITIS 3200 and ITIS 4220.*

**ITIS 3105. Server-Side Applications and Data Management. (3)** Prerequisites: ITIS 2300 and ITCS 1213, or permission of department. This course covers principles that are important for implementing advanced Web-based applications. Emphasis will be placed on industrial and business applications which require robust and secure implementations. Server-side scripting and processing techniques will be exercised in course projects.

**ITIS 3106. Structured System Analysis and Design. (3)** Prerequisite: ITCS 1213 or permission of department. Structured systems development.

Strategies and techniques of structured analysis and structured design to produce logical methodologies for dealing with complexity in the development of information systems.

**ITIS 3110. IT Infrastructure II: Design and Practice.**

**(3)** Prerequisites: ITIS 2110 and ITIS 2110L or permission of department. Corequisite: ITIS 3110L. The concepts for the design and implementation of robust IT infrastructures. Topics include: system hardening, secured access, penetration testing, file storage services, as well as advanced topics in design and configuration of network based services. Course grade includes the student's performance in ITIS 3110L.

**ITIS 3110L. IT Infrastructure II: Design and Practice Lab.**

**(0)** Corequisite: ITIS 3110. Guided laboratory exercises dealing with IT Infrastructure concepts and equipment. Performance in ITIS 3110L will be counted as portion of the ITIS 3110 grade. *Graded on a Pass/No Credit basis.*

**ITIS 3130. Human-Computer Interaction.**

**(3)** Prerequisite: Sophomore standing. Concepts of the design of the human-machine environment, with special emphasis on human-computer interaction and how people acquire, store, and use data from the environment and from computers. Topics include: analysis, creation and improvement of equipment and environment to make them compatible with human capabilities and expectation; analysis of existing equipment with respect to user usability and interfacing capabilities.

**ITIS 3131. Human and Computer Information Processing.**

**(3)** Prerequisite: ITIS 2300 or permission of department. Overview of methods people use to acquire, store, and use the data they receive from the environment and their implementation of computers. Topics include: perception, pattern recognition, attention, memory, knowledge representation, language, and problem solving.

**ITIS 3132. Information Systems.**

**(3)** Prerequisite: ITIS 2300 or permission of department. Analysis, design, implementation, and evaluation of information systems. Topics include: techniques of manipulating data; behavioral component of dealing with the user and integration of technology, procedures, and people.

**ITIS 3150. Rapid Prototyping and Interface Building.**

**(3)** Prerequisite: Sophomore standing. Students will learn various ways to rapidly prototype interface design ideas. This course will teach the theory behind rapid prototyping and how it relates to Human-Computer Interaction. Students will study low fidelity prototyping methods such as FIDO design and paper

prototyping, and then move into higher fidelity prototyping methods such as throwaway digital prototyping. Evolutionary prototyping, interface building using high-level programming languages, will be covered. In addition to software prototyping, students will also perform blank model prototyping for physical devices.

**ITIS 3200. Introduction to Information Security and Privacy.**

**(3)** Prerequisite: ITCS 1213 or permission of department. This course provides an introductory overview of key issues and solutions for information security and privacy. Topics include: security concepts and mechanisms; security technologies; authentication mechanisms; mandatory and discretionary controls; basic cryptography and its applications; intrusion detection and prevention; information systems assurance; anonymity and privacy issues for information systems.

**ITIS 3300. Software Requirements and Project Management.**

**(3)** Prerequisite: ITIS 2300 or permission of department. Introduction to requirement engineering and project management methodologies. Topics include: requirements elicitation, specification, and validation; structural, informational, behavioral, security, privacy, and computer user interface requirements; scenario analysis; application of object-oriented methodologies in requirements gathering; spiral development model; risk management models; software engineering maturity model; project planning and milestones; cost estimation; team organizations and behavior. Case studies will be used.

**ITIS 3301. Introduction to the Regulatory Environment for Financial Services Firms.**

**(3)** Cross-listed as ITCS 3301. Prerequisite: ITCS 2301 or ITIS 2301. Using case studies, understand the compliance and regulatory environment that currently exists for Financial Services firms.

**ITIS 3310. Software Architecture and Design.**

**(3)** Prerequisite: ITCS 2214 or permission of department. Introduction to software design with emphasis on architectural design and design patterns. Models of software architecture. Architecture styles and patterns, including explicit, event-driven, client-server, and middleware architectures. Decomposition and composition of architectural components and interactions. Use of non-functional requirements for tradeoff analysis. Component based software development, deployment and management. A system design language, such as UML, are introduced and used throughout the course.

**ITIS 3320. Introduction to Software Testing and Assurance.**

**(3)** Prerequisites: ITIS 3200 and ITIS 3300 or permission of department. Methods of

evaluating software for correctness, and reliability including code inspections, program proofs and testing methodologies. Formal and informal proofs of correctness. Code inspections and their role in software verification. Unit and system testing techniques, testing tools and limitations of testing. Statistical testing, reliability models.

**ITIS 3590. Software and Information Systems Cooperative Education and 49ership Experience. (0)** This course is required of Co-op and 49ership/service 49ership students during the semester they are working. Acceptance into the Experiential Learning Program is required. Participating students pay a course registration fee for transcript notation. Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**ITIS 3650. Senior Project I. (3)** Prerequisites: Senior standing and two ITCS/ITIS 3xxx/4xxx courses with grade of C or above, or permission of department. An individual or group project in the teaching, theory, or application of software and information systems under the direction of a faculty member. Projects must be approved by the department before they may be initiated.

**ITIS 3651. Senior Project II. (3)** Prerequisite: ITIS 3650. A continuation of ITIS 3650.

**ITIS 3695. Software and Information Systems Cooperative Education Seminar. (1)** Required of Co-op students immediately following each work assignment for presentation of reports on work done the prior semester.

**ITIS 4011. Interaction Design Studio. (4)** Prerequisites: ITIS 1212 and ITIS 3130. Aspects of interaction design taught in a studio setting. Topics include: gesture-based interaction, tangible interaction, large public display interaction, tabletop interaction, multi-touch tablet interaction, and human-robot interaction. Students learn how to apply a theoretical understanding of some aspect of interaction design to the study of existing designs and the development of a new design. Outcomes include writing a literature review about interaction design, executing user studies and critiques of existing designs, and developing and implementing a new interaction design for a specific purpose. *May be repeated for credit.*

**ITIS 4166. Network-Based Application Development. (3)** Prerequisites: ITIS 2300 and ITCS 2214. Examines the issues related to network based application development. Topics include: introduction to computer networks, web technologies and standards, network based programming methodologies, languages, tools and standards.

**ITIS 4170. Advanced Client Applications. (3)** Prerequisites: ITIS 2300 and ITCS 2214. The theory and practice of techniques to develop Web applications that have the features and functionality of traditional desktop applications, dealing with the browser as graphical user interface and the Internet as platform, with attention to interactivity, speed, functionality, and usability. Technologies covered include: X/D/HTML, DOM, CSS, and client-side scripting for layout and formatting, data interaction formats such as XML and JSON, and asynchronous server interaction with client-side scripting and XML (AJAX). The course will examine emerging frameworks for development support, as well as typical applications such as mapping "mashups," folksonomies, and social networking.

**ITIS 4180. Mobile Application Development. (3)** Cross-listed as ITCS 4180. Prerequisite: ITCS 2214 or permission of department. Mobile platforms are at the center of attention of users and organizations nowadays. Most organizations and businesses are rapidly migrating toward the cloud and need to provide a fast and easy mechanism for users to stay connected to their services. Mobile applications are the top trend nowadays given the high variety of new mobile devices and platforms such as Apple's iOS and Google's Android. In this course, students are introduced to the foundations of mobile development and its unique requirements and constraints. Students design and build a variety of mobile applications with a hands-on and project-based approach.

**ITIS 4220. Vulnerability Assessment and Systems Assurance. (3)** Prerequisite: ITIS 3200 or permission of department. Methodologies, tools, and technologies that are important for vulnerability assessment and systems assurance. Topics include: ethical hacking techniques, vulnerability assessment, risk assessment/management, finding new exploits, discovering vulnerabilities, penetrating network perimeters, bypassing auditing systems, and assured administration of systems as well as evaluating systems assurance levels. Focus placed on: 1) understanding current penetration techniques for networks, operating systems, services and applications; 2) investigating mitigation and defense strategies; and 3) studying legal and ethical considerations. Based on case studies with a strong lab component.

**ITIS 4221. Secure Programming and Penetration Testing. (3)** Prerequisite: ITIS 4166 or permission of department. Techniques for web application penetration testing, secure software development techniques for network based applications. Automated approaches such as static code analysis and application scanning are also discussed.

**ITIS 4250. Computer Forensics. (3)** Prerequisites: ITIS 2300 or permission of department. The identification, extraction, documentation, interpretation, and preservation of computer media for evidentiary purposes and/or root cause analysis. Topics include: techniques for discovering digital evidence; responding to electronic incidents; tracking communications through networks; understanding electronic media, crypto-literacy, data hiding, hostile code and Windows™ and UNIX™ system forensics; and the role of forensics in the digital environment.

**ITIS 4490. Professional Internship. (0-6)** Cross-listed as ITIS 4490. Prerequisite: Department approval. Full or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Each student's internship program must be approved by the supervising faculty. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading will be by the supervising faculty in consultation with off-campus supervisor at the internship organization. May be repeated but a maximum of six credit hours only may be used to meet a major requirement such as a major elective. Any credit above the maximum of six hours may only be used as free electives.

**ITIS 4510. Web Mining. (3)** Pre- or corequisite: ITCS 3160 or permission of department. Topics include: measuring and modeling the Web; crawling, Web search and information retrieval; unsupervised learning, supervised learning, semi-supervised learning in Web context; social network analysis and hyperlink analysis; text parsing and knowledge representation.

**ITIS 4640. Financial Services Informatics Industry Foundations Capstone I. (3)** Cross-listed as ITCS 4640. Prerequisite: Senior standing. An individual or group project in the theory, teaching, or application of Financial Services Informatics under the direction of a faculty member. Projects must be approved before they may be initiated.

**ITIS 4641. Financial Services Informatics Industry Foundations Capstone II. (3)** Cross-listed as ITCS 4641. Prerequisite: ITCS 4640 or ITIS 4640. A continuation of ITCS/ITIS 4640.

**ITIS 4990. Undergraduate Research. (3)** Prerequisite: Permission of department. Undergraduate research under the supervision and direction of a faculty member. *May be repeated for credit up to 6 credits.*

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## Italian (ITLN)

**ITLN 1201. Elementary Italian I. (4)** Fundamentals of the Italian language, including speaking, listening comprehension, reading, and writing.

**ITLN 1202. Elementary Italian II. (4)** Prerequisite: ITLN 1201 or permission of department. Fundamentals of the Italian language, including speaking, listening comprehension, reading, and writing.

**ITLN 2201. Intermediate Italian I. (3)** Prerequisite: ITLN 1202 or permission of department. Review of grammar, conversation, and composition.

**ITLN 2202. Intermediate Italian II. (3)** Prerequisite: ITLN 2201 or permission of department. Continued review of grammar, conversation, and composition.

**ITLN 3050. Topics in Italian. (3) (W)** Study of Italian language, culture, or literature. *May be repeated for credit with change of topic.*

**ITLN 3051. Topics in Italian. (1-3)** Study of Italian language, culture, or literature. *May be repeated for credit with change of topic.*

**ITLN 3201. Italian Grammar and Conversation. (3)** Prerequisite: ITLN 2202 or permission of department. Review of Italian grammar and guided conversation on prepared topics. Emphasis on spoken and written Italian.

**ITLN 3202. Italian Grammar and Composition. (3)** Prerequisite: ITLN 3201 or permission of department. Review of Italian grammar and guided compositions on prepared topics on culture, film, and literature. Emphasis on: vocabulary, idiomatic expressions, and stylistics.

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## Japanese (JAPN)

**JAPN 1201. Elementary Japanese I. (4)** Acquisition of communicative competence in speaking, listening comprehension, reading, and writing at a beginning level, with attention to cultural awareness.

**JAPN 1202. Elementary Japanese II. (4)** Prerequisite: JAPN 1201 or permission of department. Continuation of JAPN 1201.

**JAPN 2050. Topics in Japanese. (1-3)** Prerequisite: JAPN 1202 or permission of instructor. Consideration of a predetermined topic not covered by other JAPN courses. *May be repeated for credit with change of topic.*

**JAPN 2201. Intermediate Japanese I. (4)** Prerequisite: JAPN 1202 or permission of department. Acquisition of communicative competence in speaking, listening comprehension, reading, and writing at an intermediate level, with attention to cultural awareness.

**JAPN 2202. Intermediate Japanese II. (4)** Prerequisite: JAPN 2201 or permission of department. Continuation of JAPN 2201.

**JAPN 2205. Japanese Oral Communication. (3)** Prerequisite: JAPN 2201 or permission of the department. Students are paired with native Japanese speakers via Skype to improve linguistic production and communication skills. Practice in speech and presentation.

**JAPN 2209. Introduction to Japanese Civilization and Culture. (3)** Conducted in English. No knowledge of Japanese is required. Geographical, historical, and artistic features of Japanese culture as well as aspects of life, thought, and customs of the Japanese-speaking people.

**JAPN 3050. Topics in Japanese. (1-3)** Prerequisite: JAPN 2202 or permission of instructor. Consideration of a predetermined topic not covered by other JAPN courses. *May be repeated for credit with change of topic.*

**JAPN 3051. Topics in Japanese. (1-3)** Prerequisite: JAPN 2202 or permission of instructor. May be taken simultaneously with JAPN 3130, JAPN 3140, or JAPN 3160. Students study Japanese specifically related to each course topic.

**JAPN 3105. Japanese Immersion - Communication Skills Development. (3)** Prerequisite: JAPN 2201. Students work with native Japanese speakers to improve productive communication skills. Continued practice in all four skills: speaking, listening, reading, writing, with a focus on active communication.

**JAPN 3130. Business and Culture in Japan. (3)** Prerequisite: Sophomore standing or permission of department. Conducted in English. An introduction to the structure, protocol, and cultural concepts of the Japanese-speaking business world. Development of intercultural understanding and communication skills for conducting business in Japan, including study of basic business vocabulary. Students seeking to study

course topic-related Japanese language may also enroll in the corresponding course, JAPN 3051.

**JAPN 3140. Anime and Japanese Popular Culture. (3)** Prerequisite: Sophomore standing or permission of instructor. Conducted in English. Examines anime (Japanese animation) and manga (graphic novels), two of the most important cultural products to appear in the post-war period, as a way of understanding the changing character of contemporary Japanese culture and society. As anime is a rich and diverse medium, students approach it from a variety of perspectives: as art, as social commentary, and as Japanese and global popular culture. Students seeking to study course topic-related Japanese language may also enroll in the corresponding course, JAPN 3051.

**JAPN 3160. Topics in Japanese Film. (3) (W)** Prerequisites: Sophomore status and UWRT 1102. Conducted in English. Examines topics in Japanese film and culture, including the creative exchange of transnational influences, the emergence of the Japanese studio system as rival and complement to Hollywood, Japanese films and global cinema. All materials are examined in historical, social, and aesthetic contexts. *May be repeated for credit with change of topic.* Students seeking to study course topic-related Japanese language may also enroll in the corresponding course, JAPN 3051.

**JAPN 3201. Upper Intermediate Japanese I. (4)** Prerequisite: JAPN 2202 or permission of department. Review of Japanese grammar and guided conversation on prepared topics. Emphasis on spoken Japanese.

**JAPN 3202. Upper Intermediate Japanese II. (4)** Prerequisite: JAPN 3201 or permission of department. Review of Japanese grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

**JAPN 3400. Teaching Practicum. (3)** Pre- or corequisite: JAPN 3201 or permission of department. An opportunity for interested students to serve as teaching assistants in upper- and lower-level Japanese language courses, depending on the student's proficiency level in Japanese. Arrangements to take this course should be made during the preceding semester. *Graded on a Pass/No Credit basis. May be repeated for credit one time.*

**JAPN 3800. Directed Individual Study. (1-3)** Prerequisite: Permission of department. Individual work on a selected area of study with the instructor, generally arranged during the preceding semester. *May be repeated for credit.*

**JAPN 4050. Topics in Japanese. (1-3)** Prerequisite:

JAPN 3202 or permission of instructor. Consideration of a predetermined topic not covered by other JAPN courses. *May be repeated for credit with change of topic.*

**JAPN 4150. Studies in Japanese Language. (3)** Prerequisites: JAPN 3202, or permission of department. Studies in intensive intercultural communication practice in speaking, listening, reading and writing, and translation/interpretation.

**JAPN 4100. JLPT Prep. (3)** Prerequisite: JAPN 3201 or permission from the department. Provides a preparatory study for the Japanese Language Proficiency Test (JLPT), whose proficiency ratings are recognized internationally.

**JAPN 4300. Introductory Research Project. (3)** Prerequisite: JAPN 3202 or permission of department. Introduction to research methods and research-based writing in the area of Japanese Studies. Requires students to design and develop an independent project on an approved topic.

**JAPN 4410. Professional Internship in Japanese. (1-6)** Prerequisites: JAPN 3201 and 3202, or equivalent and permission of department. Faculty-supervised field and/or research experience in a cooperating professional (e.g., business) or community organization (e.g., school). Contents of internship based upon a contractual agreement among the student, department, and business or community organization.

**JAPN 4800. Directed Individual Study. (1-3)** Prerequisites: Permission of department; Japanese major. Individual work on a selected area study to be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

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## Journalism (JOUR)

**JOUR 2100. Language Craft. (2)** Prerequisite: Pre-Communication or Communication Studies major, or Journalism minor. In-depth examination of correct grammar, punctuation and writing style. Refinement of students' writing skills for journalism and public relations applications. Introduction to Associated Press Stylebook.

**JOUR 2160. Introduction to Journalism. (3) (W)** Prerequisite: Pre-Communication or Communication Studies major, or Journalism minor. Pre- or corequisite: JOUR 2100. Introduction to the basics of print journalism. Students cover a variety of stories designed to develop news and feature reporting/writing skills. Emphasis is placed on generating story ideas,

making ethical news judgments, diversity issues in journalism, gathering information, and writing and editing articles. Students are also introduced to Associated Press style.

**JOUR 3050. Topics in Journalism. (3)** Prerequisite: JOUR 2160. Timely and important areas relevant to journalism. *May be repeated for credit with permission of journalism advisor.*

**JOUR 3160. Advanced News Reporting and Writing. (3)** Prerequisite: JOUR 2160 or permission of instructor. This advanced journalism course continues the study of reporting and writing techniques introduced in JOUR 2160. Course covers news reporting and writing, with emphasis on the print media. Students survey a variety of news sources to become familiar with current events and the various approaches and styles of coverage.

**JOUR 3161. News Editing. (3)** Prerequisite: JOUR 2160 or permission of instructor. Basic studies in selection, preparation and presentation of news, with primary emphasis on newspapers. Examination of the effects of competition in multimedia news markets. Emphasis on issues of ethics, fairness and accuracy in news coverage. Diversity and legal guidelines affecting news presentation are reviewed.

**JOUR 3162. Feature Writing. (3)** Prerequisite: JOUR 2160 or permission of instructor. In depth feature writing for printed newspapers, magazines and newsletters, as well as online publications. Students select feature topics, conduct interviews and gather relevant information to write and edit stories. Students also learn how to market feature articles.

**JOUR 3163. Visual Communication in Media. (3)** Prerequisite: JOUR 2160 or permission of instructor. Course familiarizes the student with principles, theory and techniques of visual communication and explores the role and dynamics of shaping an "image" through the use of visual communication. Students are exposed to the editing and production aspects of communication visually.

**JOUR 3401. Journalism Practicum. (2)** Provides students with practical experience working with Student Media on campus. (Two semester enrollment limit)

**JOUR 4410. Professional Internship. (3 or 6)** Prerequisites: Junior or Senior standing, Journalism minor, 2.0 GPA in all coursework in the minor, and JOUR 3160 or JOUR 3162. Students work 8-10 hours per week (total 120 hours per semester) for 3 credit hours, or 16-20 hours (total 240 hours per semester) for 6 credit hours in an approved placement. *May be*

repeated for credit in a different internship with permission of advisor and the Communication Studies Internship Coordinator. Graded on a Pass/No Credit basis.

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## Kinesiology (KNES)

Upper division Kinesiology courses (KNES 2101, KNES 2169, KNES 2169L, KNES 2290, KNES 2294, KNES 2295, KNES 2296, KNES 2298 and all required 3000-level and above) may be attempted only twice. Withdrawing from the course after the Add/Drop deadline constitutes an attempt, as does receiving any letter grade. All prerequisite courses must be of a grade of C or above in order to be deemed successful.

**KNES 1099. Topics in Games/Exercise/Sports. (1-3)** Specialized topics or innovations in games, exercise, and sports. May be repeated for credit with change of topic.

**KNES 1202. Weight Training. (1)** Mechanics and programming of weight training.

**KNES 1204. Aerobic Fitness. (1)** Exercise designed to develop and maintain physical fitness through aerobic activity to music.

**KNES 1205. Beginning Yoga. (1)** An introduction to the practice and philosophy of yoga. Students learn how to apply the principles of yoga to enhance physical health and mental wellbeing.

**KNES 1206. Adaptive and Developmental Physical Education. (1)** Prerequisite: Permission of instructor. Prescribed ameliorative exercises adapted to individuals with special needs, capacities and interests.

**KNES 1208. Walk, Jog, Run. (1)** Principles of walking, jogging and running as modes for improving and maintaining cardiovascular health and physical fitness.

**KNES 1209. Step Aerobics. (1)** Physical fitness training emphasizing aerobic conditioning via variations and combinations of step patterns on adjustable exercise benches.

**KNES 1210. Beginning Swimming. (1)** For weak swimmers or nonswimmers. Instruction in water safety fundamentals, basic body positioning, maneuvering in water, and traveling skills, including basic strokes.

**KNES 1211. Intermediate Swimming. (1)** Emphasis on gaining competency in at least four basic strokes and increasing endurance. Instruction in water safety, non-swimming rescues and lap swimming for fitness.

**KNES 1215. Aquatic Fitness. (1)** Principles of safety and effectiveness of aquatic exercise as a mode for improving and maintaining general health and physical fitness.

**KNES 1220. Beginning Tennis. (1)** The rules, basic skills and strategy.

**KNES 1222. Racquet Sports. (1)** Basic skills, tactics, safety, and rules of racquetball, court and table tennis, squash, and badminton.

**KNES 1223. Beginning Badminton. (1)** The rules, basic skills and strategy.

**KNES 1231. Introduction to Outdoor Adventure. (2)** Prerequisite: KOAL minor or permission of instructor. Introduction to outdoor adventures through active participation in hikes, challenge courses, climbing wall, a solo experience, weekend trips, class discussions and written reflection. Participation in a Venture public trip required, individually selected from Venture's offerings for the semester. Special fee assessed for the trips.

**KNES 1242. Archery. (1)** The fundamental skills and selection, care, and repair of equipment.

**KNES 1250. Volleyball. (1)** The rules, fundamental skills, and strategies of the game of volleyball. Games are played each class to sharpen students' skills, knowledge, and sportsmanship.

**KNES 1263. Body Shaping. (1)** Selected methods of resistive exercises used to shape, tone and define musculature in a gymnasium setting.

**KNES 1290. First Aid: Responding to Emergencies. (3)** The knowledge and skills associated with being a first responder in case of injury or sudden illness. Qualifying students may receive certifications in: Responding to Emergencies-First Aid, CPR/AED for the Professional Rescuer, Preventing Disease Transmission (Bloodborne Pathogens Training) and Automated External Defibrillator (AED). Open to all students during Summer session. Not accepted for those wanting the ATRN major. There is a \$20 course fee.

**KNES 2101. Foundations of Physical Conditioning. (2)** Prerequisite: Athletic Training or Exercise Science major. The application and basic science of physical training programs designed to improve and maintain physical fitness.

**KNES 2150. Introduction to Kinesiology. (3)** Prerequisite: Pre-Kinesiology, Athletic Training, or Exercise Science major. Introduction to the study of athletic training and exercise science relative to

philosophies, practices, work settings, trends, knowledge bases, skills, and licensures.

**KNES 2168. Human Anatomy and Physiology for the Health Professions. (3)** Prerequisites: CHEM 1203 and CHEM 1203L; or CHEM 1251 and CHEM 1251L with grades of C or above. Fundamentals of the anatomy and physiology of the human body for the health professions. *May not be attempted more than twice.*

**KNES 2168L. Human Anatomy and Physiology Laboratory for the Health Professions. (1)** Pre- or corequisite: KNES 2168. One laboratory period of three hours a week. *May not be attempted more than twice.*

**KNES 2169. Human Anatomy and Physiology II for the Health Professions. (3)** Prerequisites: KNES 2168 and KNES 2168L with grades of C or above. Continuation of KNES 2168. *May not be attempted more than twice.*

**KNES 2169L. Human Anatomy and Physiology Laboratory II for the Health Professions. (1)** Pre- or corequisite: KNES 2169. One laboratory period of three hours a week. *May not be attempted more than twice.*

**KNES 2212. Lifeguard Training. (3)** Prerequisites: Students must be able to swim 300 yards using a combination of front crawl and breast stroke continuously, swim 20 yards, dive to 10 feet and retrieve a dive brick, and return within 1 minute and 40 seconds, and tread water for two minutes legs only. The knowledge and skills associated with lifeguarding. Qualifying students receive the American Red Cross Lifeguarding Certificate.

**KNES 2213. Water Safety Instructor. (3)** Prerequisite: Competency in all basic swimming strokes and other requirements of the American Red Cross. Techniques used in teaching people aquatic skills. Qualifying students receive the American Red Cross Water Safety Instructor's (WSI) rating.

**KNES 2219. Scuba Diving and Laboratory. (3)** Prerequisite: Junior, Senior, or Fifth-Year status and appropriate swimming ability to current scuba standards as prescribed by recognized scuba certifying organizations; open to all students during Summer Session. The science and skills associated with the use of Self-Contained Underwater Breathing Apparatus (SCUBA). Students who demonstrate the required knowledge and skills may request licensure as an open water SCUBA diver. There is a \$60 course fee.

**KNES 2220. Advanced Scuba Diving. (1)** Prerequisite: KNES 2219. The knowledge and skill required for underwater navigation, search and recovery, limited visibility diving and deep diving. There is a \$35 course fee.

**KNES 2230. Wilderness Experience. (2)** Prerequisite: KOAL minor or permission of instructor. Provides students with a series of progressive challenges, (including challenge course and backcountry travel), and time to reflect on and discuss these challenges. The course goals are two-fold; first, to gain deeper understanding of oneself and relationships through participation in in-depth group experiences, and second, to gain the skills and knowledge necessary for planning and conducting one's own backpacking trips. Field experiences during class and two weekend backpacking trips. A special fee is assessed to cover the costs of the trips.

**KNES 2233. Rock Climbing. (2)** Prerequisite: KOAL minor or permission of instructor. Introduction to rock climbing with emphasis on belaying and safety systems, climbing techniques, and the metaphorical and psychological aspects of climbing. Course includes: classroom sessions, use of indoor climbing wall, and weekend trips to outdoor climbing sites. A special fee will be charged to cover the costs of the weekend trips.

**KNES 2236. Challenge Course Activities. (2)** Prerequisite: KOAL minor or permission of instructor. Immersion in a developmental small group team experience using a wide variety of challenge course activities (i.e., ropes course, trust exercises, group initiatives.) The focus is on expanding students' self-knowledge and understanding of how to work effectively with and lead others.

**KNES 2237. Raft Guiding. (2)** Prerequisites: KOAL minor or permission of instructor. Offered in conjunction with the U.S. National Whitewater Center (USNWC) and covers the same information they provide in their Guide School. Successful completion of this course along with current First Aid and CPR certification prepare students to work as raft guides for the USNWC. Students taking this class must be comfortable being immersed in turbulent water. A special fee is assessed.

**KNES 2238. White Water Kayaking. (2)** Prerequisite: KOAL minor or permission of instructor. Offered in conjunction with the U.S. National Whitewater Center (USNWC). An introduction to kayaking with an emphasis on; boat control, safety, the Eskimo roll, river reading and whitewater paddling. Students taking this class must be comfortable being immersed in turbulent water. A special fee is assessed.

**KNES 2239. Rock Climbing Management. (2)**

Prerequisite: KNES 2233 or permission of instructor. Intermediate rock climbing with emphasis on setting anchors, managing a rock climbing site, safety systems and rescues, and climbing techniques. Includes: classroom sessions, use of indoor climbing wall, and weekend trips to outdoor climbing sites. A special fee is assessed to cover the costs of the weekend trips.

**KNES 2290. Emergency Medical Response. (3)**

Prerequisite: Athletic Training or Exercise Science major; open to all students during Summer Session. The knowledge and skills necessary to work as an emergency medical responder (EMR) to help sustain life, reduce pain and minimize the consequences of injury or sudden illness until more advanced medical care arrives and takes over. Qualifying students may receive certifications in: Emergency Medical Response, CPR/AED for the Professional Rescuer and Healthcare Provider, Preventing Disease Transmission (Bloodborne Pathogens Training). There is a \$20 course fee.

**KNES 2294. Care and Prevention of Athletic Injuries. (3)**

Prerequisite: Pre-Kinesiology, Athletic Training, or Exercise Science major. Focus on the healthcare competencies necessary for the prevention, emergency management and acute care of athletic related injuries. Also provides an introduction to the role of the Certified Athletic Trainer in providing health to the physically active individual.

**KNES 2295. Care and Prevention of Athletic Injuries Laboratory. (1)**

Prerequisite: Athletic Training major. Focus on the psychomotor competencies and clinical proficiencies necessary for the prevention, emergency management and acute care of athletic-related injuries.

**KNES 2296. Evidence-Based Practice. (3)**

Prerequisite: Athletic Training major and departmental Honors students with permission of instructor. Gain knowledge of critical appraisal and experience in the practice of evidence based healthcare.

**KNES 2298. Applied Kinesiology. (3)**

Prerequisites: KNES 2168 and KNES 2168L, or BIOL 2273 and BIOL 2273L; and Athletic Training or Exercise Science major. The study of musculoskeletal anatomy and how it relates to normal function of the human body.

**KNES 2299. Medical Terminology. (3)**

Students learn proper medical and scientific terminology usage within the context of human anatomy and physiology, and pathology.

**KNES 2333. Baseball Through History and Playing. (3)**

First explores the socioeconomic climate of

baseball's origins from the 1800s to the present. The second half provides activity-oriented instruction that introduces softball's emergence from baseball through basic skills, rules, and strategies of the game.

**KNES 3099. Movement Problems/Topics. (1-6)**

Prerequisite: permission of instructor. Movement problems/topics chosen by the student which relate to special areas of interest. *May be repeated for credit with permission of instructor.*

**KNES 3100. Organization and Administration of Exercise Science. (3)**

Prerequisite: Exercise Science major. Provides the necessary knowledge and skills of organization and administration in various settings within exercise science field. Additionally, students gain the knowledge and skills in professional development and responsibility necessary to function as a professional in exercise science.

**KNES 3221. Elementary Physical Activity and Health Education. (3)**

Prerequisites: SPED 2100 and either EDUC 1100 or EDUC 2100 with grades of C or above; Elementary Education, Special Education, or Special Education/Elementary Education Dual Licensure major. Integrating physical activity and health education with elementary school curriculums.

**KNES 3230. Wilderness Trip Leading. (3)**

Prerequisite: KOAL minor or permission of instructor. The broadly accepted skills and knowledge necessary for leading group adventure trips. Includes spring break backpacking trip(s) and classroom sessions. After successful completion of this course students will be eligible to assist with Venture trips. A special fee is assessed to cover the costs of the trips.

**KNES 3235. Challenge Course Facilitation. (3)**

Prerequisite: KOAL minor or permission of instructor. Focus on both the technical and facilitation skills and the knowledge necessary for safely and effectively leading groups through high and low challenge courses. In addition to class room sessions, weekend days at the High Team Challenge Course, and observation/apprenticing of actual Venture programs are required.

**KNES 3236. Theory and Foundations of Adventure Education. (3)**

Prerequisite: KOAL minor or permission of instructor. An exploration of the history, philosophical foundations, proposed outcomes, and operational theories that are common in outdoor adventure education.

**KNES 3260. Nutrition for the Physically Active. (3)**

Prerequisite: Athletic Training or Exercise Science major. Introduction to principles and concepts of

nutrition and how dietary practices affect health and disease.

**KNES 3280. Exercise Physiology: Foundation and Theory. (3)** Prerequisite: KNES 2169 or BIOL 2274 with grade of C or above; and Athletic Training or Exercise Science major. The physiological responses to exercise, adaptations to exercise training, and the mechanisms responsible for them in relation to both health fitness and athletic performance.

**KNES 3281. Exercise Physiology: Principles and Application. (3) (W)** Prerequisite: Athletic Training or Exercise Science major. Application of principles with laboratory experiences and the development of writing strategies appropriate to the domain of exercise physiology. Enhances the lecture material presented in KNES 3280.

**KNES 3285. Principles of Strength and Conditioning. (3)** Prerequisite: Athletic Training or Exercise Science major. A study of biomechanical and physiological principles of strength and conditioning for the physically active.

**KNES 3285L. Principles of Strength and Conditioning Lab. (1)** Prerequisites: KNES 3285 and Exercise Science major with Concentration in Strength and Conditioning, or permission of instructor. Lecture material and laboratory experiences for the biomechanical and physiologic principles of strength and conditioning programs. Strong focus on practical application of strength and conditioning principles for training and testing techniques for special populations, apparently healthy populations, and athletes.

**KNES 3286. Exercise Testing: Foundation and Theory. (3)** Prerequisite: Athletic Training or Exercise Science major. Methods and protocols for collecting and interpreting information collected on individuals concerning various fitness parameters for the future development of individual and group conditioning programs.

**KNES 3286L. Exercise Testing Lab. (1)** Prerequisite: Athletic Training major. Corequisite: KNES 3286. Practitioner lab in the use of appropriate data collection methods and protocols.

**KNES 3287. Exercise Testing: Principles and Applications. (3) (O, W)** Corequisite: KNES 3286 or permission of instructor. Application of principles with laboratory experiences and the development of writing strategies and oral presentation skills appropriate to the domain of exercise testing. Appropriate data collection methods and protocols are used. Enhances the lecture material presented in KNES 3286.

**KNES 3288. Upper Body Injury Evaluation. (3)** Prerequisite: Athletic Training major. Orthopedic evaluation competencies for assessing athletic-related injuries and pathology to the upper extremities, cervical and thoracic spine.

**KNES 3289. Upper Body Injury Evaluation Laboratory. (1)** Corequisite: KNES 3288. Practitioner lab focusing on the psychomotor competencies and clinical proficiencies related to upper extremity, cervical and thoracic spine injury, and pathology assessment.

**KNES 3290. Lower Body Injury Evaluation. (3)** Prerequisites: KNES 2295 and KNES 2298. Orthopedic evaluation competencies for assessing athletic-related injuries and pathology to the lower extremities and lumbar spine.

**KNES 3291. Therapeutic Modalities. (3)** Prerequisite: KNES 2295 and KNES 2298. Theories and techniques of therapeutic modalities within the scope of athletic training.

**KNES 3292. Therapeutic Modalities Laboratory. (1)** Corequisite: KNES 3291. Practitioner lab focusing on the psychomotor competencies and clinical proficiencies related to the use of therapeutic modalities within the scope of athletic training.

**KNES 3293. General Medical and Psychosocial Aspects of Athletic Training. (3)** Prerequisites: KNES 3290 and KNES 3295. Cognitive, psychomotor, and affective competencies and proficiencies that the entry-level certified athletic trainer must possess to recognize, treat, and refer, when appropriate, the general medical conditions, psychosocial situations, and disabilities of athletes and others involved in physical activity.

**KNES 3295. Lower Body Injury Evaluation Laboratory. (1)** Corequisite: KNES 3290. Practitioner lab focusing on the psychomotor competencies and clinical proficiencies related to lower extremity and lumbar spine injury evaluations.

**KNES 3298. Therapeutic Exercise Foundations. (3)** Prerequisites: KNES 3290 and KNES 3295. Study of the theory and principles that guide the application of therapeutic exercise.

**KNES 3400. Athletic Training Clinical I. (2)** Prerequisites: KNES 2295 and KNES 2298. Acquisition and application of clinical proficiencies and psychomotor competencies necessary for the entry-level athletic trainer. Students must complete approximately 20 hours of clinical experience per week at an approved athletic training clinical agency.

**KNES 3401. Athletic Training Clinical II. (2)**  
Prerequisite: KNES 3400. Continuation of KNES 3400. Students must complete approximately 20 hours of clinical experience per week at an approved athletic training clinical agency.

**KNES 3900. Undergraduate Research. (1-3)**  
Prerequisites: Permission of instructor. Enables majors to initiate research projects in their respective fields of interest. *May be repeated for credit with change of topic. Maximum of nine hours credit toward major.*

**KNES 4121. Pharmacology for the Physically Active. (3)** Prerequisites: Athletic Training or Exercise Science major, KNES 3280 or permission of instructor. An examination of the historical aspects of use, abuse, and addiction within the realm of health and human performance. Exposes students to a wide variety of drug issues and the unique use and abuse patterns of individuals in the exercise science arena.

**KNES 4130. Applied Nutrition. (3)** Principles of nutrition, dietary guidelines, dietary relationships to diseases and health, special populations, computerized dietary analysis.

**KNES 4132. Lifetime Weight Management and Behavior Change. (3)** Prerequisites: KNES 3260 and KNES 4286. Examines factors in obesity and weight control, emphasizing techniques in behavior modification and lifestyle change for effective weight management.

**KNES 4134. Assessment and Development of Physical Fitness. (3)** Prerequisite: Permission of instructor. Responses and adaptations to exercise, assessment techniques, exercise prescription, leadership and programming.

**KNES 4286. Exercise Prescription. (3)**  
Prerequisites: Exercise Science major, KNES 3286, and KNES 3287. Interpretation and prescription of exercise and various fitness parameters for programs with healthy populations and general clinical populations.

**KNES 4290. Therapeutic Exercise. (3) (W)**  
Prerequisite: KNES 3298. Application of the therapeutic techniques used in rehabilitation for upper and lower body injuries within the scope of athletic training.

**KNES 4292. Organization and Administration of Athletic Training. (3) (O, W)** Prerequisite: KNES 4290. Athletic training organization and administration.

**KNES 4293. Biomechanics. (3)** Prerequisites: Athletic Training or Exercise Science major, and KNES 3280. Introduction to the study of physics principles as they govern human movement, as well as understanding how the neuromuscular system controls human movement. Also covers the mechanical principles that underlie musculoskeletal injury, as well as the influence that gender and ethnicity may have on various musculoskeletal pathologies.

**KNES 4400. Athletic Training Clinical III. (2)**  
Prerequisite: KNES 3401. Acquisition and application of advanced clinical proficiencies and psychomotor competencies necessary for the entry-level athletic trainer. Students must complete approximately 20 hours of clinical experience per week at an approved athletic training clinical agency.

**KNES 4401. Athletic Training Clinical IV. (2)**  
Prerequisite: KNES 4400. Continuation of KNES 4400. Students must complete approximately 20 hours of clinical experience per week at an approved athletic training clinical agency.

**KNES 4431. Outdoor Adventure Leadership Practicum. (2-4)** Prerequisites: KOAL minor or permission of instructor; and KNES 3230 or KNES 3235. Capstone course for the Minor in Outdoor Adventure Leadership providing an opportunity to take on a defined leadership role with Venture or other outdoor programs. In addition to actual work in the field, there are professional development requirements and a journal of lessons learned.

**KNES 4490. Exercise Science Senior Internship. (6-15)** Prerequisites: Completion of all other courses for the Exercise Science major, except KNES 4132. Application of acquired knowledge and skills in practitioner settings. Requires a minimum of 340 contact hours at the internship site.

**KNES 4660. Practitioner Seminar. (3)** Prerequisites: KNES 3286 and KNES 3287. Contemporary practices regarding exercise, health, and wellness. Designed to help students prepare for relevant certification exams and professional development.

**KNES 4700. Honors Research I. (3)** Prerequisites: Permission of Program Major Coordinator; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Honors project directed by Exercise Science Honors committee or assigned faculty member. One faculty contact hour per week and independent research.

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## Languages and Culture Studies (LACS)

*Languages in addition to those offered in the regular program may be available on demand. Labs may be required.*

**LACS 1201. Elementary Foreign Language. (3-4)**  
Prerequisite: Permission of department. Fundamentals of grammar and phonetics, reading, writing, and conversation of a selected language.

**LACS 1202. Elementary Foreign Language. (3-4)**  
Prerequisite: LACS 1201 or permission of department. Continuation of 1201.

**LACS 2050. Topics in Foreign Language. (1-4)**  
Studies in a selected field of interest. *May be repeated for credit with change of topic.*

**LACS 2201. Intermediate Foreign Language. (3-4)**  
Prerequisite: LACS 1202 or permission of department. Grammar review, conversation, composition, and readings based on the culture and civilization.

**LACS 2202. Intermediate Foreign Language. (3-4)**  
Prerequisite: LACS 2201 or permission of department. Grammar, conversation, composition, and readings based on students' needs.

**LACS 3050. Topics in Language, Literature, and Culture. (3) (W)** Studies in a selected field of interest. *May be repeated for credit with change of topic.*

**LACS 3051. Topics in Language, Literature, and Culture. (1-3)** Studies in a selected field of interest. *May be repeated for credit with change of topic.*

**LACS 3160. European Cinema. (3) (O, W)**  
Prerequisites: Sophomore standing and UWRT 1102 or equivalent. Introduction to films of the various national cinemas of Europe and strategies for analyzing and discussing film critically and effectively. Lectures, discussions, viewing films, writing assignments, reviews, critiques, and analyses.

**LACS 3201. Advanced Foreign Language I. (3)**  
Prerequisite: LACS 2202 or permission of department. Review of grammar and guided conversation on prepared topics. Emphasis on spoken language.

**LACS 3202. Advanced Foreign Language II. (3)**  
Prerequisite: LACS 3201 or permission of department. Review of grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

**LACS 3800. Directed Individual Study. (1-3)**  
Prerequisite: Permission of department; normally open only to foreign language majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

**LACS 4050. Topics in Foreign Language. (3)**  
Prerequisite: Senior standing or permission of department. Studies in a selected field of interest. *May be repeated for credit with change of topic.*

**LACS 4690. Senior Seminar. (1)** Prerequisites: four or more courses at the 3000 or 4000 level in the major or permission of department. Survey of career options for foreign language majors, directed professional development (preparation of resume and portfolio), and completion of departmental required assessments in the areas of speaking, reading, writing, grammar, and content knowledge of the major. *Graded on a Pass/No Credit basis.*

**LACS 4800. Directed Individual Study. (1-3)**  
Prerequisite: Permission of department; normally open only to foreign language majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester, and by special permission only. *May be repeated for credit.*

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## Latin (LATN)

**LATN 1201. Elementary Latin I. (4)** Beginning survey of elementary Latin grammar through selected readings.

**LATN 1202. Elementary Latin II. (4)** Prerequisite: LATN 1201 or equivalent. Completion of the survey of elementary Latin grammar; connected readings in elementary to intermediate Latin prose.

**LATN 2201. Latin Prose. (3)** Prerequisite: LATN 1202 or equivalent. Extended selected readings in Latin prose of intermediate difficulty: Caesar, Nepos, or Seneca.

**LATN 3800. Directed Individual Reading. (1-3)**  
Prerequisite: permission of instructor. Individual work on an author or genre to be arranged with the instructor.

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## Liberal Studies (LBST)

**LBST 1101. The Arts and Society: Dance. (3)** An introduction to dance in the context of the arts and society. Exploration of the similarities among selected

dance traditions from around the world in terms of functionality; how 20<sup>th</sup> and 21<sup>st</sup> century American concert dance, social dance, and popular entertainment dance reflect those traditions; socio-political issues evidenced in choreography through lectures, discussion, film video, and live dance performance. *May not be repeated for credit.*

**LBST 1102. The Arts and Society: Film. (3)** An introduction to the art of film in the context of the arts and society. Analysis of the elements of narrative and documentary film, including works made for television. Examines the role of Hollywood, international, and independent cinema (including television) in reflecting, shaping, and critiquing society. *May not be repeated for credit.*

**LBST 1103. The Arts and Society: Music. (3)** This course is an introduction to music in the context of the arts and society. Students will survey the position of music in selected cultures from around the world. Emphasis will be placed on music in the United States and Europe. Students will experience a wide range of ideas and styles and move toward thoughtful, critical, and creative listening. Through this course students will gain a deeper understanding of the place of music in reflecting, shaping and critiquing society. *May not be repeated for credit.*

**LBST 1104. The Arts and Society: Theater. (3)** An introduction to theater in the context of the arts and society. Analysis of the elements that make up theatrical events. The place of theater in reflecting, shaping, and critiquing society. *May not be repeated for credit.*

**LBST 1105. The Arts and Society: Visual Arts. (3)** An introduction to the visual arts in the context of the arts and society. The analysis of visual culture in a variety of media and genres in different historical periods and geographic locations. The function, meaning, and politics of individual works of art and art movements. Also addresses the role of art as a site for the articulation of value systems, including gender, class, and race. *May not be repeated for credit.*

**LBST 2101. Western Cultural and Historical Awareness. (3)** All sections of this course explore a major aspect of Western culture. Particular attention is given to an examination of the constructed nature of the present through a close examination of the past and the ways that selected institutions, ideas, or practices change over time and spread in human society, producing both continuity and novelty. *May not be repeated for credit.*

**LBST 2102. Global and Intercultural Connections. (3)** All sections of this course examine two or more

cultures in their own contexts and in the contexts of the global conditions and influences that impact all major world cultures today. Particular attention is given to an analysis of the complex nature of globalization and to a consideration of both its positive and negative impacts. *May not be repeated for credit.*

**LBST 2211. Ethical Issues in Personal, Professional, and Public Life. (3)** An analysis of the conceptual tools needed to make informed, responsible judgments based on the ability to think critically and knowledgeably about issues of personal, professional, and public ethics and morality. The study of a variety of ethical views and ethical issues. *May not be repeated for credit.*

**LBST 2212. Literature and Culture. (3)** This course examines the connections between literature and culture. Students are offered the opportunity to examine the roles that literature plays in reflecting, shaping, and challenging cultures. *May not be repeated for credit.*

**LBST 2213. Science, Technology, and Society. (3)** The role of science and technology in society. The appreciation and understanding of science and the public policy issues related to science and technology. Issues such as science vs. pseudo-science, the ethics of science and technology, the methods of the sciences, the importance of major scientific discoveries, and public expectations of the sciences. *May not be repeated for credit.*

**LBST 2214. Issues of Health and Quality of Life. (3)** A study of individual and social aspects of health. Analysis of individual health and illness behavior and theory; the social, political, and economic contexts of health and illness; and the broad cultural, ethical, and religious understandings of health and illness. *May not be repeated for credit.*

**LBST 2215. Citizenship. (3) (SL)** A study of the concept of citizenship as it has evolved in different cultures with an emphasis on scholarly understandings of the rights and responsibilities of citizenship. Includes an examination of the ethical dimensions of citizenship in political, social, and religious contexts. Includes a service component that allows students to explore the relations of citizenship and public service. During the semester the course meets a total of 27 hours for classroom lectures and discussions and requires completion of 25 hours of voluntary service in the community. *May not be repeated for credit.*

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## Latin American Studies (LTAM)

**LTAM 1100. Introduction to Latin America. (3) (0)** An introductory, interdisciplinary survey of the field of

Latin American Studies. Focus on the culture, economy, geography, history, politics, and society of Latin America, as well as on the diverse ways in which scholars have studied the region.

**LTAM 2001. Topics in Latin American Studies. (3)** Analysis of a selected topic related to Latin American Studies. Fulfills an elective in the “Economy and Society” course requirements. *May be repeated for credit with change of topic.*

**LTAM 2002. Topics in Latin American Studies. (3)** Analysis of a selected topic related to Latin American Studies. Fulfills an elective in the “Historical Perspective” course requirements. *May be repeated for credit with change of topic.*

**LTAM 2003. Topics in Latin American Studies. (3)** Analysis of a selected topic related to Latin American Studies. Fulfills an elective in the “Arts and Literature” course requirements. *May be repeated for credit with change of topic.*

**LTAM 2116. Contemporary Latin America. (3)** Cross-listed as ANTH 2116. A survey of the people and cultures of Mexico, Central America, South America, and the Caribbean. Areas of investigation include religion, race, ethnicity, gender, kinship, social inequality, and economic development.

**LTAM 2117. Cultures of the Caribbean. (3)** Cross-listed as ANTH 2117. An introduction to society and culture in the Caribbean region. Areas of investigation include ethnicity, nationalism, family and community structure, economy, religion, and politics.

**LTAM 2206. Colonial Latin America. (3)** Cross-listed as HIST 2206. A survey of major political, economic, and cultural developments from earliest times to 1826.

**LTAM 2207. Modern Latin America. (3)** Cross-listed as HIST 2207. A survey of Latin American history from 1826 to the present with emphasis on the economy and society. Special attention to twentieth-century revolutions and the role of the United States in Latin America.

**LTAM 2252. New World Archaeology. (3)** Cross-listed as ANTH 2152. Prehistory of North America; Paleoindians, Eastern United States, Southwest, Mexico; archaeological methods and theory.

**LTAM 3001. Advanced Topics in Latin American Studies. (3)** Analysis of a selected topic related to Latin American Studies. Fulfills an elective in the “Economy and Society” course requirements. The particular topic of the course may vary from semester

to semester. *May be repeated for credit with change of topic.*

**LTAM 3002. Advanced Topics in Latin American Studies. (3)** Analysis of a selected topic related to Latin American Studies. Fulfills an elective in the “Historical Perspectives” course requirements. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.*

**LTAM 3003. Advanced Topics in Latin American Studies. (3)** Analysis of a selected topic related to Latin American Studies. Fulfills an elective in the “Arts and Literature” course requirements. The particular topic of the course may vary from semester to semester. *May be repeated for credit with change of topic.*

**LTAM 3110. Black Families in the Diaspora. (3)** Cross-listed as AFRS 3210 and SOCY 3210. Acquaints students with historical and contemporary experiences of peoples of African descent in the Caribbean and Latin American countries with specific emphasis on family structure and family relationships. Includes discussion of theories, history, impact of globalization on family structure, roles of women and identity, socioeconomic status and mobility, slavery, colonialism, and capitalism. Provides a better understanding of the comparative relationships and links between family structures and common life experiences among peoples of African descent in different parts of the world, with specific emphasis on the Caribbean and Latin American regions.

**LTAM 3129. Cultural Dimension of Doing Business with Spanish-Speaking Countries (3)** Cross-listed as SPAN 3029. Prerequisite: UWRT 1102 or UWRT 1103. Development of cultural awareness for conducting business with Spanish-speaking countries and U.S. Hispanic communities. Course conducted in English.

**LTAM 3144. Latin American Politics. (3)** Cross-listed as POLS 3144. Comparative overview of political and socio-economic change in Latin America from the colonial period to the present. Primary emphasis on Latin American politics in the twentieth century, competing political ideologies, socio-economic issues, international political economy, and internal political change.

**LTAM 3154. Political Economy of Latin America. (3)** Cross-listed as POLS 3155. Intersections of politics and economics in Latin America, focusing on the efforts to foster economic development in the region. Emphasis on post-World War II era. Topics include: debt management, dependency theory, impact of free

market theories, and the power of labor movements.

**LTAM 3164. U.S.-Latin American Relations. (3)**

Cross-listed as POLS 3164. Addresses the always-complicated and often-conflictive relationship between Latin American and the United States. Particular attention to critical contemporary issues such as the drug trade, immigration, international trade, humanitarian aid and U.S. policy toward Cuba.

**LTAM 3190. Political Economy of the Caribbean. (3)**

Cross-listed as AFRS 3190. An examination of the manifestations of Caribbean economic problems and policies and Caribbean political development from the post-war period to the present.

**LTAM 3220. The Caribbean from Slavery to Independence. (3)**

Cross-listed as AFRS 3220 and HIST 3180. Covering the sweep of history from European/indigenous contact, through the construction of a plantation regime based on African slave labor, and up to the present day, this course explores the spread of colonialism, the dynamics of slavery, and the tumult of abolition and national independence movements. The Caribbean Sea will be examined as a region, emphasizing the ties uniting the islands and the circum-Caribbean coasts. The region's past - including empire and imperial conflict, racial oppression and interaction, and international contact - and its legacies will be discussed in relation to political economics, race, and contemporary culture.

**LTAM 3255. Ancient Latin America. (3)**

Cross-listed as ANTH 3155. Archaeology and ethnohistory of the Aztecs, Maya, Inca, and their predecessors; includes an investigation of prehistoric urbanism, the rise and fall of complex societies, and the application of archaeological methods to complex societies.

**LTAM 3257. South American Prehistory. (3)**

Cross-listed as ANTH 3157. Archaeology of the indigenous cultures in South America from the earliest settlement until the arrival of the Spanish, including Moche, Nasca, and Inca; focus on the Central Andean region including Peru, Bolivia, Chile, and Ecuador; examination of the origins of agriculture, interactions of people and the environment, rise and collapse of states and empires, and the role of religion and warfare in ancient societies.

**LTAM 3260. Slavery, Racism, and Colonialism in the African Diaspora. (3)**

Cross-listed as AFRS 3260 and HIST 3190. This course is designed to explore how race and racism, slavery, and colonialism served as principal institutions and constructs shaping the experience between Africa and the emerging African Diaspora in the New World. Students will consider how the maintenance of Western social, economic, and

political superiority materialized as functions of these three important historical developments.

**LTAM 3270. Afro-Latin American History. (3) (W)**

Cross-listed as AFRS 3270 and HIST 3181. This course explores the African Diaspora in Latin America ranging from the Caribbean Sea to the Rio de la Plata. From slavery, to fighting for freedom in the Spanish-American Wars of Independence, to forging new notions of citizenship in twentieth century Brazil, African-descended peoples have an important place in Latin America's historical past. According special attention to regions with concentrated populations of African-descended peoples, this course reveals the vibrant history of Afro-Latin America.

**LTAM 3274. Resistance and Adaptation: Indian Peoples Under Spanish Rule. (3)**

Cross-listed as HIST 3174. A historical survey of the interactions of indigenous peoples of the western hemisphere with Spanish colonial authorities from the conquest era to 1825. The course focuses on the indigenous peoples of Mexico, Peru, Chile, and Argentina.

**LTAM 3275. Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825. (3)**

Cross-listed as HIST 3175. This course examines the economic, political, and cultural origins of violent conflict in colonial Latin America, culminating with an analysis of the revolutions for independence.

**LTAM 3276. History of Mexico. (3)**

Cross-listed as HIST 3176. A survey of Mexican history from pre-Columbian times to the present. Special emphasis will be given to the Spanish conquest, the colonial economy, the independence period, the revolution, and relations with the United States.

**LTAM 3277. The Cuban Revolution. (3)**

Cross-listed as HIST 3177. An examination of the economic and political forces that led to the Cuban revolution. Significant background material from the 19th and early 20th centuries will be presented in addition to an analysis of the revolution and post-revolutionary events.

**LTAM 3278. History of Brazil. (3)**

Cross-listed as AFRS 3278 and HIST 3178. A study of Brazilian history since 1500, with an emphasis on social and economic history. The course emphasizes slavery and race relations, the emergence of export economics, rural protest movements, the effects of urbanization and industrialization, and the rise and fall of the military dictatorship. Meets non-Western requirement.

**LTAM 3279. Authoritarianism in Latin America. (3)**

Cross-listed as HIST 3179. A study of authoritarian rule and resistance thereto in one or more selected Latin American countries, including but not limited to

Argentina, Brazil, and Chile. *May be repeated for credit with change of topic.*

**LTAM 3300. Maya Art. (3)** Cross-listed as ARTH 3317. Survey of the cultures, artistic production and architecture of the Maya from c. 250 to 800 C. E. Readings and discussions focus on Maya rulership and social structure.

**LTAM 3301. Mexica (Aztec) Art. (3)** Cross-listed as ARTH 3318. Survey of the cultures, artistic production and architecture of the Central Mexico region from c. 1300 to the period of European invasion in the 16<sup>th</sup> century. Readings and discussions focus on artistic traditions, daily life, and political structures.

**LTAM 3302. Andean Art. (3)** Cross-listed as ARTH 3319. Survey of the cultures, artistic production and architecture of the Andean region to the period of European invasion in 1532. Readings and discussions focus on artistic traditions, cosmology, and political structures.

**LTAM 3309. Masterpieces of Hispanic Literature in English Translation. (3)** Cross-listed as SPAN 3009 if course is on Latin America topic. Prerequisites: Sophomore standing and UWRT 1102. Advanced studies of Spanish or Spanish-American literature in English translation. *May be repeated for credit with change of topic.* Course conducted in English.

**LTAM 3310. Spanish American Civilization and Culture. (3)** Cross-listed as SPAN 3210. Prerequisite: SPAN 2202 or permission of department. Introduction to the cultural heritage of Spanish America.

**LTAM 3312. Introduction to Spanish American Literature. (3)** Cross-listed as SPAN 3212. Prerequisite: SPAN 2202 or permission of department. Introduction to Spanish American literature from the 16<sup>th</sup> century through the contemporary period.

**LTAM 3313. Pre-Columbian Art. (3)** Cross-listed as ARTH 2003. Survey of the arts and architecture of the Americas before European contact in the 16<sup>th</sup> century. Special emphasis on the interactions of religion, social systems, and the arts as well as identification of ethnic styles of art. Discussions of readings, lectures, slides and video tapes. Essay exams.

**LTAM 3319. Hispanic Women Writers in English Translation. (3) (W)** Cross-listed as SPAN 3019 and WGST 3019. Prerequisites: Sophomore standing and UWRT 1102. Examination of prose and poetry by women writers from Spain and the Americas to understand women's voices and other cultures. Conducted in English. Knowledge of Spanish not required.

**LTAM 3360. Studies in Hispanic Film (3)** Cross-listed as SPAN 3160 if course is on the Latin American topic. The study of Spanish, Spanish American and/or Hispanic/Latino films. Course conducted in English. *May be repeated for credit with change of topic.*

**LTAM 3400. Latin American Studies Internship. (1-3)** Prerequisite: permission of the coordinator. Practical experience and/or training related to Latin American studies. A minimum of 45 hours per credit.

**LTAM 3800. Independent Study. (1-3)** Supervised investigation of an issue related to Latin American Studies that is of special interest to the student and that is not covered in existing or available courses.

**LTAM 4116. Culture and Conflict in the Amazon (3)** Cross-listed as ANTH 4616. Examines the development strategies Brazil has used in the Amazon and explores how these policies have affected both the environment and the various populations living in the Amazon. Topics covered include environmental degradation, human rights abuses, culture change, migration, and globalization. .

**LTAM 4120. Advanced Business Spanish I. (3)** Cross-listed as SPAN 4120. Prerequisites: SPAN 2210, SPAN 3201, and an additional SPAN 3000- or 4000 level course (SPAN 3202 recommended), or permission of department. Advanced studies in Business Spanish, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as economics, management, and marketing.

**LTAM 4121. Advanced Business Spanish II. (3)** Cross-listed as SPAN 4121. Prerequisites: SPAN 2210, SPAN 3201, and an additional SPAN 3000- or 4000 level course (SPAN 3202 recommended), or permission of department. Advanced studies in Business Spanish, intensive practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as marketing, finance, and import-export.

**LTAM 4302. Caribbean Literature in English. (3)** Cross-listed as AFRS 4102. Prerequisite: Junior standing and at least one course in AFRS for AFRS majors. Topics include: loneliness, quest for identity, nationalism, protest, and the use of patois.

**LTAM 4310. Studies in Spanish American Poetry. (3)** Cross-listed as SPAN 4210. Prerequisites: two 3000 level courses or permission of department. Studies of 19<sup>th</sup>- and 20<sup>th</sup>-century Spanish American poetry.

**LTAM 4311. Studies in Spanish American Prose Fiction. (3)** Cross-listed as SPAN 4211. Prerequisites: two 3000 level courses or permission of department. Studies of 19<sup>th</sup>- and 20<sup>th</sup>-century Spanish American prose fiction.

**LTAM 4312. Studies in Spanish American Theater. (3)** Cross-listed as SPAN 4212. Prerequisites: two 3000 level courses or permission of department. Studies of 20<sup>th</sup>-century Spanish American theater.

**LTAM 4314. Studies in Hispanic Children's Literature. (3)** Cross-listed as SPAN 4214. Prerequisite: SPAN 3211, SPAN 3212, or permission of department. Literary works in Spanish written for children.

**LTAM 4315. Studies in Regional Literature of the Americas. (3)** Cross-listed as SPAN 4215. Prerequisite: SPAN 3211, SPAN 3212, or permission of department. Studies of Mexican, Central American, Caribbean, Andean, Amazonian, or Southern Cone literature. Readings from representative works. Works from non Spanish-speaking areas read in Spanish translation. *May be repeated for credit with change of topic.*

**LTAM 4316. Social, Political, Cultural, Economic Issues in Hispanic Literature. (3)** Cross-listed as SPAN 4216. Prerequisite: SPAN 3211, SPAN 3212, or permission of department. Contextual issues surrounding Hispanic literature.

**LTAM 4317. Topics in Hispanic Culture and Civilization. (3)** Cross-listed as SPAN 4217. Prerequisite: SPAN 3211, SPAN 3212, or permission of department. Various topics involving the fine arts: music, dance, art, film. *May be repeated for credit with change of topic.* Applicable toward Spanish major or minor only when taught in Spanish.

**LTAM 4318. Cuban Literature. (3)** Cross-listed as SPAN 4218. Prerequisite: SPAN 3211, SPAN 3212, or permission of department. Cuban literary works in Spanish.

**LTAM 4322. Studies in Advanced Business Spanish. (3)** Cross-listed as SPAN 4122. Prerequisites: SPAN 3201, SPAN 3202, or SPAN 3203; and SPAN 3220; or permission of department. Advanced studies in special topics in Business Spanish (e.g., Tourism in Spain and Latin America, Free Trade in the Americas (NAFTA/TLCAN, Mercosur, The Andean Pact, CAFTA-DR), Socioeconomic Issues in the Greater Caribbean, Business and Technology in Latin America and Spain).

**LTAM 4350. Studies in Latin American Literature.**

**(3)** Cross-listed as SPAN 4050. Prerequisites: two 3000 level courses or permission of department. Study of a predetermined topic in Latin American literature. *May be repeated for credit with change of topic.*

**LTAM 4600. Seminar in Latin American Studies. (3) (W)** Prerequisite: advanced junior or senior class status. A capstone seminar involving in-depth research and analysis of a topic of common interest to Latin American Studies majors, and the elaboration of a senior writing project. May be taken more than once, in which case the second course will fulfill the capstone requirement.

**LTAM 4700. Senior Honors Thesis. (3-6)** Prerequisite: Senior standing, an overall minimum GPA of 3.25; permission of the Coordinator of Latin American Studies; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. The preparation and presentation of an acceptable honors thesis.

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## Mathematics Education (MAED)

*MAED courses offered by the Department of Mathematics and Statistics are intended for students seeking teacher licensure, licensure renewal, or license upgrading. These courses may not be used to satisfy the requirements for a Major or Minor in Mathematics. They may be accepted as non-math electives for B.A. and B.S. degrees in Mathematics and for the M.A. in Mathematics Education.*

**MAED 3000. Topics in Mathematics Education, Elementary. (1-6)** Prerequisite: Permission of department. Special topics in mathematics education for grades K-6. *May be repeated for credit with change of topic.*

**MAED 3040. Topics in Mathematics Education, Middle Grades. (1-6)** Prerequisite: Permission of department. Special topics in mathematics education for middle grades. *May be repeated for credit with change of topic.*

**MAED 3070. Topics in Mathematics Education, Secondary. (1-6)** Prerequisite: Permission of department. Special topics in mathematics education at the secondary level. *May be repeated for credit with change of topic.*

**MAED 3222. Teaching Mathematics to Elementary School Learners, Grades K-2. (3)** Prerequisites: Students must be accepted as Elementary Education majors in the College of Education. This course is designed to help students develop knowledge and understanding of school mathematics and methods for

teaching mathematics to children in grades K through 2. The course focuses on the importance of learning through manipulative and concrete experiences and on planning lessons in which students develop their ideas through action and discussion.

**MAED 3224. Teaching Mathematics to Elementary School Learners, Grades 3-6. (3)** Prerequisites: MAED 3222. This course is designed to help students develop knowledge and understanding of school mathematics and methods for teaching mathematics to children in Grades 3 through 6. The course includes a focus on planning and developing mathematics lessons and also includes the study of a variety of techniques for assessing student learning.

**MAED 4103. Using Technology to Teach Secondary School Mathematics. (3)** Prerequisite: Admission to Teacher Education or permission of department. Technology as a tool for exploring mathematical ideas and representing mathematical concepts, including lab assignments related to using technology throughout the secondary school mathematics curriculum.

**MAED 4105. Geometry in the Secondary School Mathematics Curriculum. (3)** Prerequisite: Admission to Teacher Education or permission of department. Study of geometry from synthetic, transformational, and algebraic perspectives including activities and software to enhance the conjecture/theorem/proof process.

**MAED 4232. Teaching Mathematics to Middle School Learners. (3)** Prerequisites: Admission to Teacher Education or permission of department. The initial teaching methods course for middle school mathematics teachers. Focuses on middle school mathematics and its relation to the K-12 curriculum. Topics include: the development of teaching strategies and activities in middle school mathematics with an emphasis on problem solving, mathematical connections, communication and assessment, including school-based field experiences.

**MAED 4252. Teaching Mathematics to Secondary School Learners. (3)** Prerequisite: Admission to Teacher Education or permission of department. The initial teaching methods course for secondary school mathematics teachers. Focuses on secondary school mathematics and its relation to the K-12 curriculum. Topics include: the development of teaching strategies and activities in middle school mathematics with an emphasis on problem solving, mathematical connections, communication and assessment, including school-based field experiences.

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## Mathematics (MATH)

**MATH 0900. Math Study Skills and Algebra Review. (1)** Prepares students to be successful in college algebra or precalculus. Topics include: a review of elementary algebra, exponents and radicals, polynomial and rational functions, equations, and inequalities. Study skills needed to be successful in mathematics are an important part of this course. Placement in this course is based on an appropriate eligibility level of math placement and is restricted to students who do not have college-level math credit.

**MATH 1100. College Algebra and Probability. (3)** Prerequisite: Appropriate eligibility level of math placement or placement by the department. The basic mathematics course for undergraduates not majoring in Mathematics, Engineering, or the Physical Sciences. Fundamental concepts of algebra. Students who already have credit for MATH 1103, MATH 1120, MATH 1121, or MATH 1241 with grade of C or above may not take MATH 1100 for credit and for a grade.

**MATH 1102. Introduction to Mathematical Thinking. (3)** Prerequisite: Appropriate eligibility level of math placement or placement by the department. An introduction to mathematical ideas designed primarily for non-science students. Topics are drawn from various branches of mathematics which may include algebra, geometry, number theory, probability, statistics and graph theory. Computers may be used.

**MATH 1103. Precalculus Mathematics for Science and Engineering. (3)** Prerequisite: Appropriate eligibility level of math placement or placement by the department. Intended for students who plan to take MATH 1241. Functions and graphs, linear and quadratic functions, polynomial and rational functions, exponential and logarithmic functions, trigonometric identities. Students who already have credit for MATH 1120, MATH 1121, or MATH 1241 with grade of C or above may not take MATH 1103 for credit and a grade.

**MATH 1105. Finite Mathematics. (3)** Prerequisite: Appropriate eligibility level of math placement or placement by the department. Review of high school algebra, elementary matrix algebra, systems of linear equations and inequalities, elementary linear programming; probability.

**MATH 1120. Calculus. (3)** Prerequisite: Appropriate eligibility level of math placement; MATH 1100 or MATH 1103; or placement by the department. Intended for students majoring in fields other than engineering, mathematics or science. Elements of differential and integral calculus for polynomial, rational, exponential, logarithmic functions, with applications to business and the social and life

sciences. May not be taken for credit and a grade if credit has been received for MATH 1121 or MATH 1241 with grade of C or above.

**MATH 1121. Calculus for Engineering Technology.**

**(3)** Cross-listed as ETGR 2171. Prerequisite: Appropriate eligibility level of math placement; MATH 1100 or MATH 1103; or placement by the department. Intended for students majoring in Engineering Technology. Elements of differential and integral calculus for polynomial, rational, exponential, logarithmic and trigonometric functions, with applications to engineering. May not be taken for credit and a grade if credit has been received for MATH 1120 or MATH 1241 with grade of C or above.

**MATH 1165. Introduction to Discrete Structures.**

**(3)** Prerequisites: ECGR 2103; or ITCS 1212 and ITCS 1212L. Propositions and truth tables, sets, permutations and combinations, relations and functions, lattices, and trees.

**MATH 1241. Calculus I. (3)**

Prerequisite: Appropriate eligibility level of math placement; MATH 1103 with grade of C or above; or placement by the department. Designed for students majoring in Mathematics, Science, or Engineering. Elementary functions, derivatives and their applications, introduction to definite integrals.

**MATH 1242. Calculus II. (3)**

Prerequisite: MATH 1241 with grade of C or above. Methods for evaluating definite integrals, applications of integration, improper integrals, infinite series, Taylor series, power series, and introduction to differential equations.

**MATH 1340. Mathematics for Elementary Teachers I. (3)**

Prerequisite: Math Level 2 or permission of department. Develops elementary teachers' understanding of essential concepts of real numbers and algebra. Students re-conceptualize their understanding of number systems, operations in these systems, and their properties. Helps develop students' understanding of functions and their applications to real-life situations.

**MATH 1341. Mathematics for Elementary Teachers II. (3)**

Prerequisite: MATH 1340 or permission of department. Develops elementary teachers' understanding of fundamental concepts of geometry, measurement, and data. Students re-conceptualize definitions and properties of polygons and polyhedral including the concepts of perimeter, area, surface area, volume, transformation, and congruence and similarity. Helps develop students' understanding of the organization, representation, and analysis of data, measures of central tendency and variation, and basic concepts of probability.

**MATH 2050. Topics in Mathematics. (2-3)**

Prerequisite: Permission of department. Topics in mathematics elected to supplement regular offerings at the 2000-level. *May be repeated for credit with permission of department.*

**MATH 2120. Intermediate Applied Calculus. (3)**

Prerequisite: MATH 1120 or MATH 1241. Introduction to the calculus of functions of several variables, trigonometric functions, techniques of integration of functions of one variable, differential equations, and Taylor polynomials and infinite series. May not be taken for credit and for a grade if credit has been received for MATH 1242.

**MATH 2164. Matrices and Linear Algebra. (3)**

Prerequisite: MATH 1120 or MATH 1241 with grade of C or above; or permission of department. Matrix algebra, systems of linear equations, vector spaces, linear transformations, determinants, inner products, eigenvalues.

**MATH 2171. Differential Equations. (3)**

Prerequisite: MATH 1242 with grade of C or above. An introduction to ordinary differential equations including first order equations, general theory of linear equations, series solutions, special solutions, special equations such as Bessel's equation, and applications to physical and geometric problems.

**MATH 2241. Calculus III. (3)**

Prerequisite: MATH 1242 with grade of C or above. Functions of two or more variables, vectors in two and three dimensions, partial derivatives, optimization, double and triple integrals and their applications.

**MATH 2242. Calculus IV. (3)**

Prerequisite: MATH 2241 with grade of C or above. Parametric curves and surfaces, vector fields, line and surface integrals; Green's theorem, Divergence theorem, Stoke's theorem and applications. Fourier series and its applications.

**MATH 2340. Number Concepts and Relationships. (3)**

Prerequisite: MATH 1100 or MATH 1103 with grade of C or above or permission of department. A study of integers, rationals, and real numbers; conjectures and intuitive proofs in a number theory; number sequences, patterns, functions; algebraic concepts and skills. An emphasis on the development of problem-solving strategies and abilities. (May not be taken for the major or minor).

**MATH 2341. Algebra and Algebraic Structures. (3)**

Prerequisites: MATH 2340 with grade of C or above or MATH 2102 with grade of C or above or permission of department. A study of functions and their properties arising from a variety of problem situations.

Representations of real-world relationships with physical models, charts, graphs, equations, and inequalities. Properties of real and complex numbers. Concrete examples of algebraic structures such as groups, rings, fields, and vector spaces.

**MATH 2342. Data Analysis and Probability. (3)**  
Prerequisite: STAT 1220 or STAT 1222 with grade of C or above or permission of department. Introduction to the statistical process. Collection of data from experiments and surveys; organizing, representing, and interpreting data; formulating arguments based on analysis. Plan and conduct experiments and simulations to determine experimental probabilities. Develop counting techniques and other methods to determine probabilities. (May not be taken for the major or minor).

**MATH 2343. Geometry and Measurement. (3)**  
Prerequisite: MATH 1100 or MATH 1103 with a grade of C or above or permission of department. A study of properties and relationships of shape, size, and symmetry in two and three dimensions. Explore concepts of motion in two and three dimensions through transformations. Present written and oral arguments to justify conjectures and generalizations. Become familiar with the historical development of Euclidean geometry. (May not be taken for the major or minor).

**MATH 2428. Actuarial Science IA. (3)** Prerequisite: MATH 1242 or MATH 2120. The measurement of interest: simple, compound, nominal, effective, dollar-weighted, time-weighted, force of interest; yield rates; equation of value; basic and more general annuities amortization schedules and sinking funds.

**MATH 3050. Selected Topics in Mathematics. (2-3)**  
Prerequisite: Permission of department. Topics selected to supplement regular offerings at the 3000 level in mathematics or statistics. *May be repeated for credit with permission of department.*

**MATH 3116. Graph Theory. (3)** Prerequisite: MATH 2164 or permission of department. Graphs as mathematical models. Planarity, colorability, connectivity, trees. Applications and algorithms for networks, matching problems and areas of computer science.

**MATH 3122. Probability and Statistics I. (3)** Cross-listed as STAT 3122. Prerequisite: MATH 2241 with grade of C or above. Sample spaces, random variables, moment generating functions, some standard distributions, multivariate distributions, laws of large numbers, limit theorems.

**MATH 3123. Probability and Statistics II. (3)** Cross-listed as STAT 3123. Prerequisite: MATH 3122 or STAT 3122. Estimation, bias, consistency, efficiency, maximum likelihood estimates, sufficient statistics, testing, the power function, chi square test, Kolmogorov Smirnov test.

**MATH 3128. Actuarial Science IB. (3)** Prerequisite: MATH 2428 or permission of department. The mathematical theory of compound interest, term structure of interest, annuities, perpetuities, loans, bonds, stocks, derivative, forwards, futures, short and long positions, call and put options, spreads, collars, hedging, arbitrage, and swaps.

**MATH 3129. Actuarial Science IIA. (3)**  
Prerequisites: MATH 3122 and MATH 3128, or permission of department. Life contingent models and application to insurance and annuities. Survival distribution: probability functions, life tables, force of mortality, mortality laws, life expectancy, select mortality; Insurance: continuous and discrete, moments, percentiles, recursive formulas; Annuities: continuous and discrete, whole life, temporary, deferred, actuarial present and accumulated values, moments, percentiles, recursive formulas; Premiums: benefit premiums for continuous and discrete insurance, gross premiums, variance of future loss. This course is the first of two preparatory courses for Actuarial Exam MLC.

**MATH 3141. Advanced Calculus of One Variable. (3)** Prerequisites: MATH 2241 and MATH 2164 with grades of C or above. Topology of the real line; continuity, uniform continuity, differentiability, integration, sequences and series of functions.

**MATH 3142. Advanced Calculus of Several Variables. (3)** Prerequisite: MATH 3141. Continuity and differentiability of functions of several variables, inverse and implicit function theorems, integration, Fubini's theorem, change of variables, the classical integral theorems of Gauss, Green and Stokes and their generalizations.

**MATH 3146. Introduction to Complex Analysis. (3)**  
Prerequisite: MATH 2241 with grade of C or above. Analytic functions, complex integration, calculus of residues, conformal mapping.

**MATH 3163. Introduction to Modern Algebra. (3) (W)** Prerequisite: MATH 1242 and MATH 2164 with grade of C or above or permission of department. Examples and elementary properties of basic algebraic structures, especially groups. The course emphasizes the writing of proofs of elementary theorems.

**MATH 3166. Combinatorics. (3)** Prerequisites: MATH 2164. Combinatorial modeling, generating functions, recurrence relations, inclusion-exclusion principle and problems from recreational mathematics.

**MATH 3171. Applied Mathematics. (3)** Prerequisites: MATH 2241 and MATH 2171 with grades of C or above. Separation of variables techniques for the classical partial differential equations of mathematical physics; Fourier series; Sturm-Liouville theory.

**MATH 3176. Numerical Analysis. (3)** Prerequisites: ITCS 1214, MATH 2241, and MATH 2171. Numerical solution of initial value and boundary value problems in ordinary differential equations, direct and iterative methods of solving systems of equations. Selected problems are programmed for computer solution.

**MATH 3181. Fundamental Concepts of Geometry. (3)** Prerequisite: MATH 2164 with grade of C or above. Foundations of geometry, transformations, comparison of Euclidean and non-Euclidean geometries.

**MATH 3551. Mathematics Cooperative Education and 49ership Experience. (0)** Prerequisite: Students must meet a minimum GPA of 2.0 for 49erships/service 49erships, be in good standing with the University, complete 30 credit hours at the institution (transfer students are required to complete 12 credit hours), and obtain permission of Department of Mathematics and Statistics. Acceptance into the Experiential Learning Program by the University Career Center is required. The student will be employed in a manner that affords him/her the opportunity of using and enhancing mathematical knowledge and skills through practical experience of co-op rotation or 49ership experience. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. After completing MATH 3551, the co-op student must take MATH 3652. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**MATH 3652. Mathematics Cooperative Education Seminar. (1)** Prerequisite: MATH 3551. Students give an exposition of their work experience in MATH 3551. An exposition of underlying theoretical concepts and related ideas may also be required.

**MATH 3688. Mathematics Awareness Seminar. (0)** Prerequisite: Sophomore standing. Visiting speakers,

discussion of internships, cooperative education and job opportunities; selected topics in mathematics.

**MATH 3689. Mathematics Project Seminar. (1) (0)** Prerequisite: Senior standing. Oral presentation by the student on an area of mathematics or a mathematical problem.

**MATH 3691. Seminar. (1-6)** Prerequisite: Permission of department. Readings, study and discussion designed to develop the student's ability to study independently and to present results properly.

**MATH 3790. Junior Honors Seminar. (3)** Prerequisite: Permission of department. *May be repeated for credit one time with permission of department.*

**MATH 3791. Senior Honors Tutorial. (3)** Prerequisite: Permission of department and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Individual tutorials in which students pursue independent study and research in any area of mathematics under the direction of one or more faculty members. The projects of students are planned to culminate in a research paper of original or expository nature. *May be repeated for credit with permission of department.*

**MATH 4000. Topics in Foundations or History of Mathematics. (2-3)** Prerequisite: Permission of department. Topics in the foundations or the history of mathematics selected to supplement regular course offerings in this area of mathematics. *May be repeated for credit with permission of department.* Credit for the M.A. degree in Mathematics requires approval of the department.

**MATH 4040. Topics in Analysis. (2-3)** Prerequisite: Permission of department. Topics in analysis selected to supplement regular course offerings in this area of mathematics. *May be repeated for credit with permission of department.* Credit for the M.A. degree in Mathematics requires approval of the department.

**MATH 4051. Computer Exploration and Generation of Data. (3) (0)** Prerequisite: MATH 2120 or MATH 2241, and STAT 2122 or STAT 2223. This is a project course. Grades are based on four to five projects that utilize spreadsheet technology. Includes an introduction to a major spreadsheet, such as Excel. Assigned projects may be selected from a range of topics that include: Data Analysis and Exploration; Dynamical Models and Difference Equations (Epidemics, Harvesting Models, Population Dynamics, Predator-Prey Models); Physical Models (projectile motion, including air resistance, orbits of celestial

bodies, heat propagation); Combinatorics and Probability (birthday problem, genetics, simulation of distributions); Optimization (inventory control, apportionment algorithms); Financial Mathematics (Stock Price Simulation, Pricing of Derivatives); Business Simulations (Net Present Value Comparisons and Risk Evaluation, Sensitivity Analyses). Completed projects must include written descriptions, explanation, and evaluation along with appropriate working spreadsheets that accomplish the assigned objectives.

**MATH 4060. Topics in Algebra. (2-3)** Prerequisite: Permission of department. Topics in algebra selected to supplement regular course offerings in this area of mathematics. *May be repeated for credit with permission of department.* Credit for the M.A. degree in Mathematics requires approval of the department.

**MATH 4080. Topics in Geometry and Topology. (3)** Prerequisite: Permission of department. Topics in geometry or topology selected to supplement regular course offerings in this area of mathematics. *May be repeated for credit with permission of department.* Credit for M.A. degree in Mathematics requires approval of the department.

**MATH 4109. History of Mathematical Thought. (3)** Prerequisite: MATH 1241 or permission of department. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times.

**MATH 4122. Probability and Stochastic Models. (3)** Prerequisite: MATH 3122, STAT 2223, or STAT 3122. Topics include: a brief review of probability, normal random variables, the Central Limit Theorem, and applications to Statistics; Poisson process, the exponential distribution, and applications in actuarial science; the binomial branch model of option pricing.

**MATH 4128. Risk Theory. (3)** Prerequisite: MATH 2120 or MATH 1242; MATH 3122, STAT 2223, or STAT 3122, and STAT 3110. Topics include: an introduction to risk theory and the concept of VAR (Value-at-Risk), building blocks consisting of measuring financial risk, computing VAR, backtesting, portfolio risk, forecasting risks and correlation, and a study of VAR Systems including VAR Methods, stress testing, delta-normal VAR, simulations, credit and liquidity risk.

**MATH 4129. Actuarial Science IIB. (3)** Prerequisite: MATH 3129 or permission of the department. Premiums: benefit premiums, gross premiums, variance of future loss. Reserves: prospective and retrospective formulas, gross and expense reserves. Multiple decrement models. Multiple lives: joint life and last survivor probabilities, moments, contingent

probabilities, common stock, insurances and annuities. This course is the second of two preparatory courses for Actuarial Exam MLC.

**MATH 4161. Number Theory. (3)** Prerequisite: MATH 3163 with grade of C or above or permission of department. A study of the elements of classical number theory including divisibility, congruences, diophantine equations, prime numbers and their distribution, quadratic reciprocity, number-theoretic functions, and famous unsolved problems. Not approved for the M.A. in mathematics degree.

**MATH 4163. Modern Algebra. (3)** Prerequisite: MATH 3163 or permission of department. Groups, rings, integral domains, and fields.

**MATH 4164. Abstract Linear Algebra. (3)** Prerequisite: MATH 2164 and MATH 3163, or permission of department. Vector spaces over arbitrary fields, linear transformations, canonical forms, and multilinear algebra.

**MATH 4181. Introduction to Topology. (3)** Prerequisite: MATH 2164 with grade of C or above. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axioms, compactness and connectedness.

**MATH 4691. Seminar. (1-6)** Prerequisite: Permission of department. Individual or group investigation and exposition of selected topics in mathematics.

**MATH 4692. Seminar. (1-6)** Prerequisite: Permission of department. A continuation of MATH 4691.

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## Modern Greek (MDGK)

**MDGK 1201. Elementary Modern Greek I. (4)** Fundamentals of the Modern Greek language, including speaking, listening comprehension, reading, and writing.

**MDGK 1202. Elementary Modern Greek II. (4)** Prerequisite: MDGK 1201 or permission of department. Fundamentals of the Modern Greek language, including speaking, listening comprehension, reading, and writing.

**MDGK 2201. Intermediate Modern Greek I. (3)** Prerequisite: MDGK 1202 or permission of department. Intensive review of elementary grammar, with emphasis on speaking and oral comprehension.

**MDGK 2202. Intermediate Modern Greek II. (3)** Prerequisite: MDGK 2201 or permission of department. Reinforcement and expansion of competence in

speaking, understanding, reading, and writing, in a cultural context.

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## Middle Grades Education (MDLG)

**MDLG 3130. The Early Adolescent Learner. (4)** Prerequisite: Admission to Teacher Education. Physical, sexual, social, cognitive, and emotional development in the 10-15 year old with emphasis on how these developmental diversities affect the middle grades classroom. Includes 40 hours of field experiences.

**MDLG 3131. The Philosophy and Curriculum of Middle Grades Education. (4)** Prerequisites: MDLG 3130, admission to Teacher Education. Overview of education in the middle grades (6-9) with emphasis on the foundational components, organizational patterns, instructional programs, and integrated curriculum unique to the middle school. Includes 40 hours field experiences.

**MDLG 3800. Individual Study in Middle Grades Education. (1-6)** Prerequisite: Permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. *May be repeated for credit.*

*Note: Students are required to complete a year-long internship beginning the semester prior to student teaching and ending upon the successful completion of student teaching.*

**MDLG 4440. Student Teaching/Seminar: 6-9 Middle Grades Education. (12) (O)** Prerequisite: Completion of all coursework, and departmental approval of an application for Student Teaching. Corequisite: MDSK 4150. Planned sequence of experiences in the student's two areas of content specialization conducted in approved middle school setting under the supervision and coordination of a university supervisor and an on-site cooperating teacher. During student teaching, students must demonstrate the competencies identified for his/her specific teaching fields in appropriate grade-level settings. Approximately 35 to 40 hours per week in an assigned school setting, teaching in two areas of concentration, with up to eight seminars scheduled throughout the semester.

**MDLG 4471. Middle Grades Clinical Experience. (3)** Program of learning activities in the student's level and/or area of academic concentration in an approved school setting (grades 6-9).

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## Middle, Secondary, and K-12 Education (MDSK)

**MDSK 2100. Foundations of Education and Diverse Youth in Secondary Schools. (3)** For students interested in the field of education and teaching at the high school level. Provides an introduction to education including social, historical, and philosophical foundations, major issues, diversity, and students with special needs. Requires 12 hours of field-based activities in high schools and non-school settings, divided between general classrooms and special education settings. Service-learning sections of this course may have additional requirements.

**MDSK 3150. Research and Analysis of Teaching Middle School Learners. (3) (W)** Should be taken in the semester prior to student teaching. Concepts, methods, and practices used by effective teachers in their daily classroom routines, including systematic observation skills, interpretation of observation data, and application of research-based findings. Includes 20 hours of field experiences.

**MDSK 3151. Instructional Design and Technology Integration. (3)** Prerequisites: MDSK 2100 [SECD students only]; SPED 2100 and either EDUC 1100 or EDUC 2100 [MDLG students only]; and admission to Teacher Education. Pre- or corequisite: SECD 4140 or MDLG 3130. Planning for instruction and evaluation of learning in the 21st century classroom. Emphasis on writing learning objectives and instructional plans for various domains of learning. An introduction to the systematic process of planning for effective classroom instruction and assessment. Emphasis on setting goals and objectives for instruction, planning activities and assessments based on cognitive, social, affective, and psychomotor factors and designing appropriate means of assessing those learning objectives. Special attention given to the related use of technology in the development of effective and systematic learning environments, including capabilities and limitations of technology, evaluating programs and technological resources, and the effective use of emerging technologies in the classroom. It is expected that students enter the course with basic recognition of computer hardware and software. 15-hour clinical requirement.

**MDSK 3160. Learning and Development: Birth through Adolescence. (3)** Prerequisites: EDUC 1100 or EDUC 2100; SPED 2100; and admission to Teacher Education. Theories of learning and development and a systematic examination of childhood and adolescence, with particular attention to biological, social, and cognitive areas of child development. Includes 10 hours of field experiences.

**MDSK 3161. K-12 Curriculum Studies. (3)**  
Prerequisites: EDUC 1100 or EDUC 2100; SPED 2100; and admission to Teacher Education. Curriculum planning and development skills with emphasis on relating school content and skills to societal and individual needs, designing and implementing integrated activities, and examining the nature and functions of schools.

**MDSK 4150. Assessment, Reflection, and Management Practices. (3)** Corequisite for Middle Grades Majors: MDLG 4440; corequisites for Secondary Education Minors: SECD 4451, 4452, 4453, or 4454. Concepts, methods, and practices used by effective teachers in their daily classroom routine, including assessment, reflection, classroom and behavior management. Course may be taught on site at a Professional Development School. Includes 30 hours of field experiences.

**MDSK 4251. Teaching Science to Middle and Secondary School Learners. (3)** Should be taken semester prior to student teaching. Preparation to teach science at the middle and secondary school levels with emphasis on a holistic, interdisciplinary understanding of science; science as related to everyday life and society; and interdisciplinary aspects of science. Includes 30 hours of field experiences.

**MDSK 4253. Teaching Social Studies to Middle and Secondary School Learners. (3) (SL)** Should be taken semester prior to student teaching. A methods course for teaching social studies at the middle and secondary school levels. Emphasis on using social science content to develop effective teaching strategies, instructional plans, and classroom materials for teaching social studies to middle and secondary school students. Includes 30 hours of field experiences.

## Mechanical Engineering (MEGR)

*Courses must be completed to progress within three attempts including withdrawing from the course with a grade of W. Failure to progress in three attempts will result in suspension from the program.*

**MEGR 2141. Engineering Mechanics I. (3)**  
Prerequisites: PHYS 2101 and MATH 1242 with grades of C or above. Introduces the principles of particle and rigid body mechanics with engineering applications; force systems and resultants; the equilibrium of particles and rigid bodies; friction; and properties of areas and volumes.

**MEGR 2144. Introduction to Solid Mechanics. (3)**  
Prerequisites: MEGR 2141 with grade of C or above.

Engineering theory of deformable solids and applications. Stress and deformation resulting from axial, torsion and bending loads. Shear and moment diagrams, Mohr's circle for stress and strain and buckling of columns.

**MEGR 2156. Design Projects I Laboratory. (2)**  
Prerequisites: ENGR 1201, ENGR 1202, MEGR 2141, PHYS 2102, all with grades of C or above. Corequisite: MEGR 2180. Introduction to design as well as the fundamentals of manufacturing, including computer-aided manufacturing (CAM). Emphasis on design visualization, functional analysis, and design prototyping. Student designs are manufactured to verify design concepts.

**MEGR 2180. Manufacturing Systems. (3)**  
Prerequisites: ENGR 1202, MEGR 2141, and PHYS 2102L, all with grades of C or above. Corequisite: MEGR 2156. A broad overview of manufacturing materials, processes, and procedures. Topics include: mechanical behavior and physical properties, basic materials, casting, rolling, forming, welding, cutting, surfaces, engineering metrology, quality assurance, and automation. Basic concepts of engineering economics and cost estimating. The economics of manufacturing are also introduced, including the time value of money, economic analysis, and cost estimating.

**MEGR 2279. Introduction to Biomedical Engineering. (1)** Prerequisites: Admission to BSME Biomedical Engineering concentration and GPA of 3.0 or above. An examination of various aspects of Biomedical Engineering.

**MEGR 2299. Introduction to Motorsports Engineering. (1)** Prerequisites: Admission to Motorsports concentration and Sophomore standing. An examination of various aspects of automotive and motorsports engineering presented by faculty and industry representatives. Participation as a Motorsports Trainee (MT) is required. MT's are assigned to automotive projects on campus and/or with industrial partners.

**MEGR 2240. Computational Methods for Engineers. (3)** Prerequisites: MEGR 2141 with grade of C or above. Automated engineering analysis and synthesis techniques based on software engineering principles. Overview of data representation and computing languages. Program development using programming languages and off-the shelf software packages. Study of numerical methods, potential errors, and computational stability. emphasis on effective design, testing, and debugging practices.

**MEGR 2499. Introduction to Energy Engineering. (1)** Prerequisites: Admission to BSME energy concentration, Sophomore standing, and a GPA of 3.0 or above. An examination of various aspects of energy engineering.

*Upper division engineering courses (3000 level and above) used to satisfy degree requirements within the College of Engineering are restricted to majors and minors of the College of Engineering.*

**MEGR 3090. Special Topics in Mechanical Engineering. (1-4)** Prerequisite: Permission of department. *Technical Elective.* Builds upon and synthesizes the knowledge the students have gained from the mechanical engineering core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization. *May be repeated for credit.*

**MEGR 3092. Special Topics in Motorsports Engineering. (1-4)** Prerequisite: Permission of department. *Technical Elective.* Builds upon and synthesizes the knowledge the students have gained from the mechanical engineering core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization. *May be repeated for credit.*

**MEGR 3094. Special Topics in Energy Engineering. (1-4)** Prerequisite: Permission of department. *Technical Elective.* Builds upon and synthesizes the knowledge the students have gained from the mechanical engineering core curriculum. The specific topics covered in each separate offering of the course will serve as the vehicle for teaching engineering analysis, synthesis and design, while simultaneously affording an opportunity for the students to point themselves toward an area of specialization. *May be repeated for credit.*

**MEGR 3111. Thermodynamics I. (3)** Prerequisites: MATH 2171 and PHYS 2101 with grades of C or above. First and second laws of thermodynamics. Work and heat carnot cycle. Ideal and real gases. Non-reactive mixture of gases. Availability and irreversibility.

**MEGR 3112. Thermodynamics II. (3)** Prerequisite: MEGR 3111 with grade of C or above. General thermodynamic relations; equations of state and

generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to power cycles.

**MEGR 3114. Fluid Mechanics. (3)** Prerequisites: MATH 2241 and MEGR 3121 with grades of C or above. Basic concepts of a fluid and the fundamentals of ideal and real fluid flow. Topics include: fluid statics, conservation principles, Bernoulli's equation, fluid flow in pipes, and measurement devices.

**MEGR 3116. Introduction to Heat Transfer. (3)** Prerequisites: MATH 2171 and MEGR 3111 with grades of C or above. Pre- or corequisite: MEGR 3114. One and two dimensional steady state conduction. Finite difference methods. Radiative heat transfer, emissivity, black body radiation. Heat exchange among two and multi-body systems. Introduction to concepts and applications of convective heat transfer.

**MEGR 3121. Dynamics Systems I. (3)** Prerequisites: MEGR 2141 and MATH 1242 with grades of C or above. The kinematics and kinetics of rigid bodies. Work-energy and impulse-momentum principles and conservation laws. Introduction to the kinematics of mechanisms.

**MEGR 3122. Dynamic Systems II. (3)** Prerequisites: MEGR 2240, MEGR 3121 and MATH 2171 with grades of C or above. Modeling of mechanical dynamic systems. Vibration of lumped mass systems. Analysis and design of mechanical systems using time domain and frequency domain methods. A grade of C or above is required.

**MEGR 3131. Introduction to Electronic Materials. (3)** Prerequisite: PHYS 2102 with grade of C or above. *Technical Elective.* Electronic materials and devices with examples from crystalline and amorphous semiconductors, junction and MOS devices, thermoelectrics, lasers and super-conductors. Introduction to the quantum mechanics of electrons in solids, electron-atom interactions and energy band model, providing a basis for rationalizing a wide variety of electronic properties.

**MEGR 3152. Mechanics and Materials Laboratory. (2) (W)** Prerequisites: MEGR 2144, MEGR 3121, MEGR 3161 and MEGR 3171L, all with grade of C or above. Laboratory experiments related to the areas of mechanics and materials engineering. Three hours of laboratory work per week.

**MEGR 3156. Design Projects Lab II. (2)** Prerequisites: ECGR 2161, MEGR 2144, MEGR 2156, and MEGR 2180, all with grades of C or above. Study of the process of design and reduction to practice of engineering concepts in a team environment.

Requirements definition, concept synthesis, concept of evaluation, project planning and execution.

**MEGR 3161. Introduction to Engineering Materials.**

**(3)** Prerequisites: CHEM 1251, MATH 2171, and MEGR 2144, all with grades of C or above. Classifications of engineering materials. Introduction to property structure relationships. Ideal and defect atomic structures of solids with examples from metals, ceramics and polymers. Cold working and annealing effects. Phase equilibria in alloys; introduction to diffusional processes and transformation kinetics.

**MEGR 3162. Mechanical Behavior and Strengthening of Solids. (3)**

Prerequisite: MEGR 3161, with grade of C or above. *Technical Elective.* Mechanical properties of materials including elastic behavior, plastic flow, fracture, creep, fatigue, and elevated temperature effects. Correlation of properties with atomic and microscopic structure. Dislocation theory and its application to mechanical behavior and strengthening mechanisms. Alloy hardening effects; effects of processing and heat treatments. Applications in Fe-C alloys.

**MEGR 3171. Introduction to Measurements and Instrumentation. (2)**

Prerequisites: ECGR 2161 and MATH 2241 with grades of C or above. Corequisite: MEGR 3171L. Statistical analysis of experimental data, curve fitting. Operational amplifiers and signal conditioning techniques for remote monitoring. Discussion of the principles involved in the use of sensors and transducers in measurements of linear and angular displacement, velocity and acceleration, temperature, force, pressure, torque and flow. Introduction to dynamic measurements and frequency analysis.

**MEGR 3171L. Instrumentation Laboratory. (2) (W)**

Prerequisite: PHYS 2102L with grade of C or above. Corequisite: MEGR 3171. Utilization of measuring equipment targeted to mechanical engineering applications. Experiments will focus on the use of instrumentation and computer interfacing methods for the optimization of measurement processes. Basic programming of scientific instruments.

**MEGR 3210. Automotive Power Plants. (3)**

Prerequisite: MEGR 3112 with grade of C or above. *Technical Elective.* Energy analysis of internal and external combustion engines for vehicular propulsion. Thermodynamic principles for combustion efficient use of fuel combustion, different types of fuel use, and pollutant control.

**MEGR 3211. Road Vehicle Dynamics. (3)**

Prerequisites: MEGR 3122 with grade of C or above. *Technical Elective.* An introduction to road vehicle

Dynamics. Acceleration and braking performance, road loads, steady-state cornering, suspension, steering system and tire behavior.

**MEGR 3212. Heat Convection and Compact Heat Exchanger Design. (3)**

Prerequisites: MEGR 3114 and MEGR 3116 with grades of C or above. *Technical Elective.* Natural, forced internal and external heat convection, heat convection in phase change (boiling and condensation) and design of compact heat exchangers.

**MEGR 3214. Refrigeration and Air/Conditioning. (3)**

Prerequisites: MEGR 3112 and 3116 with grades of C or above. *Technical Elective.* Thermodynamics and heat transfer applied to analysis, design of cooling/heating systems.

**MEGR 3216. Thermal/Fluid Design. (3)**

Prerequisites: MEGR 3112, MEGR 3114, and MEGR 3116 with grades of C or above. Design of systems utilizing thermodynamic, heat transfer, and fluid flow principles. Topics include: thermal system design, thermodynamic modeling, design applications with heat transfer, thermo-economic optimization of simple and complex systems.

**MEGR 3221. Machine Analysis and Design I. (3)**

Prerequisites: MEGR 3121 and MEGR 2144 with grades of C or above. Technical application of basic principles of mechanical science to analysis of machines and mechanical systems. Design of typical machine elements. Strength and deflection requirements.

**MEGR 3222. Machine Analysis and Design II. (3)**

Prerequisite: MEGR 3221 with grade of C or above. *Technical Elective.* Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements.

**MEGR 3225. Introduction to Finite Element Analysis. (3)**

Prerequisites: MATH 2171, MEGR 2144, and MEGR 2240 with grades of C or above. *Technical Elective.* The basic concepts of finite element analysis (FEA) are introduced. The necessary concepts from linear algebra are reviewed. Simple elements such as truss and beam elements are emphasized, with an introduction to continuum elements for structural analysis. Introduction to heat transfer elements for steady state conduction and convection. Mathematics software is used to illustrate such concepts as the finite element assembly process, and the solution of the primary unknowns. A commercially available finite element code is also introduced.

**MEGR 3231. Advanced CAD/CAM. (3)** Prerequisites: ENGR 1202 and MEGR 2156 with grades of C or above. *Technical Elective.* An introduction to advanced CAD modeling techniques, reverse engineering and Rapid technologies with a detailed application of these tools in engineering design.

**MEGR 3232. Plastic Part Design. (3)** Prerequisites: ENGR 1202 and MEGR 2156 with grades of C or above. *Technical Elective.* An introduction to the science and technology of polymer materials and processes with an emphasis on the application of these topics to engineering design.

**MEGR 3233. Introduction to Biomaterials. (3)** Prerequisites: MEGR 3161 with grade of C or above. *Technical Elective.* An introduction to biomaterials science and engineering, focusing on traditional classes of materials used for biomedical applications (i.e., metals, ceramics, polymers, and composites).

**MEGR 3234. Introduction to Biodynamics. (3)** Prerequisites: MEGR 2144 and MEGR 3121 with grades of C or above. *Technical Elective.* This course will introduce dynamic analysis of the human musculoskeletal system. Students will learn to develop lumped mass, planar rigid body and 3D rigid body models of human movement, and to learn to calculate internal forces in muscles and joints during daily and sports activities.

**MEGR 3235. Waves and Optics. (3)** Prerequisites: MATH 2171 and MEGR 3122 with grades of C or above. An introductory study of optics covering geometrical optics, optical instruments, wave optics (interference and diffraction), Fourier analysis, and polarization.

**MEGR 3236. Introduction to Nanoscale Science and Engineering. (3)** Prerequisites: MEGR 3161 and MEGR 3171 with grades of C or above. Introduction to nanoscale science and engineering. Topics include: nanomanufacturing, nanomaterials and nanostructures, nanomechanics, experiments with nano-instruments, and related environmental issues.

**MEGR 3241. Motorsports Instrumentation. (3)** Prerequisites: ECGR 2161 with grade of C or above. *Technical Elective.* General applications of test equipment and instrumentation as applied to the motorsports industry. Includes three two-hour labs and one driver outing during the semester.

**MEGR 3242. Applied Vehicle Aerodynamics. (3)** Prerequisites: MEGR 2240, MEGR 3111, and MEGR 3114, all with grade of C or above. *Technical Elective.* Flow of air around streamlined and bluff bodies, aerodynamic forces, understanding flow separation

and reattachments, aerodynamic tools, introduction to computational fluid dynamics, use of commercial CFD packages to solve fluid flow problems, computer simulation and analysis of flow around bluff bodies and road vehicles including racecars.

**MEGR 3243. Automotive Powertrain Laboratory. (3)** Prerequisites: MEGR 3210 with grade of C or above. *Technical Elective.* Applications of test equipment, instrumentation, and data acquisition as applied to the powertrain. Includes ten one-hour labs and a racing engine team tour.

**MEGR 3251. Thermal/Fluids Laboratory. (2) (W)** Prerequisites: MEGR 3111, MEGR 3114, and MEGR 3171L, all with grades of C or above. Laboratory experiments related to the areas of thermodynamics, fluid mechanics, and heat transfer. Three hours of laboratory work per week.

**MEGR 3255. Senior Design I. (2)** Prerequisites: MEGR 3156 and MEGR 3171L with grades of C or above. Pre- or corequisites: MEGR 3152 and MEGR 3251. First of a two-semester sequence leading to a major integrative experience in applying the principles of design and project management to the design of a major mechanical engineering system. Teamwork and communication skills are emphasized.

**MEGR 3256. Senior Design II. (2) (O)** Prerequisite: MEGR 3255. A continuation of MEGR 3255 including project execution leading to an oral presentation and final written report.

**MEGR 3275. Biomedical Engineering Senior Design I. (2)** Prerequisites: Admission to BSME Biomedical Engineering concentration; Senior standing in Mechanical Engineering; MEGR 2299, MEGR 3156, and MEGR 3171L with grades of C or above. Pre- or corequisites: MEGR 3152 and MEGR 3251. First of a two-semester sequence leading to a major integrative experience in applying the principles of design and project management to the design of a biomedical engineering system or the solution of a biomedical engineering problem. Teamwork and communication skills are emphasized.

**MEGR 3276. Biomedical Engineering Senior Design II. (2) (O)** Prerequisites: Admission to BSME Biomedical Engineering concentration and MEGR 3275. A continuation of MEGR 3275, including project execution, project reporting, and leading to an oral presentation and a final written report.

**MEGR 3281. Numerical Control of Manufacturing Processes. (3)** Prerequisite: MEGR 2180. *Technical Elective.* Fundamental theory and application of numerically controlled machine tools including design

principles, elements of machine structure, control systems programming methods. Role of numerical control in flexible manufacturing systems. Two lectures and a two hour lab per week.

**MEGR 3282. Statistical Process Control and Metrology. (3)** Prerequisite: MEGR 2180 with grade of C or above. *Technical Elective*. Introduction to metrology. Measurement of size, form and surface texture. Introduction to quality control, control charts for attributes and variables, acceptance sampling. Process capability estimation and process control.

**MEGR 3299. Professional Development. (1)** An examination of various aspects of engineering as a profession. *Graded on a Pass/No Credit basis*.

**MEGR 3355. Motorsports Senior Design I. (2)** Prerequisites: Admission to Motorsports concentration; Senior standing in Mechanical Engineering; MEGR 2299 and MEGR 3156, and MEGR 3171L, all with grades of C or above. Pre- or corequisites: MEGR 3152 and MEGR 3251. First of a two-semester sequence leading to a major integrative experience in applying the principles of design and project management to the design of an automotive engineering system. Teamwork and communication skills are emphasized. An examination of various aspects of automotive and motorsports engineering presented by faculty and industry representatives.

**MEGR 3356. Motorsports Senior Design II. (2) (0)** Prerequisites: Admission to Motorsports concentration and MEGR 3355. A continuation of MEGR 3355 including project execution, project reporting and leading to an oral presentation and a final written report. An examination of various aspects of automotive and motorsports engineering presented by faculty and industry representatives.

**MEGR 3451. Stationary Power Plant Systems. (3)** Prerequisites: MEGR 3112, MEGR 3114, and MEGR 3116, all with grade of C or above. *Technical Elective*. Thermodynamics and heat transfer applied to the analysis and design of stationary power plant systems.

**MEGR 3452. Introduction to Nuclear Engineering. (3)** Prerequisites: MEGR 3112, MEGR 3114, and MEGR 3116, all with grade of C or above. *Technical Elective*. An introduction to the science and technology of nuclear engineering as applied to power plant operation and design.

**MEGR 3455. Energy Senior Design I. (2)** Prerequisites: Senior standing; MEGR 2499, MEGR 3112, MEGR 3156, and MEGR 3171L, all with grades of C or above. Pre- or corequisites: MEGR 3152 and MEGR 3251. First of a two-semester sequence leading

to a major integrative experience in applying the principles of design and project management to the design of a major mechanical engineering system with energy/power emphases. Teamwork and communication skills are emphasized.

**MEGR 3456. Energy Senior Design II. (2) (0)** Prerequisites: MEGR 3455. Second of a two-semester sequence leading to a major integrative experience in applying the principles of design and project management to the design of a major mechanical engineering system with energy/power emphases. Teamwork and communication skills are emphasized.

**MEGR 3695. Mechanical Engineering Cooperative Education Seminar. (1)** Prerequisite: ENGR 3590. Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. *May be repeated for credit*.

**MEGR 3890. Individualized Study. (1-3)** Prerequisite: Permission of department. *Technical Elective*. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. *May be repeated for credit*.

**MEGR 3990. Undergraduate Research. (1-4)** Prerequisite: Permission of department. *Technical Elective*. Independent study of a theoretical and/or experimental problem in a specialized area of mechanical engineering. Topics originate from the student or the faculty member supervising the study. *May be repeated for credit*.

**MEGR 4112. Intermediate Fluid Mechanics and Vehicle Aerodynamics. (3)** Prerequisites: MEGR 3111 and 3114 with grades of C or above. *Technical Elective*. A continuation of MEGR 3114. Topics include: flow over body surfaces, lift and drag, boundary layers, ground effect, potential flow theory and compressible flow. Application of aerodynamics to ground vehicles and its effect on vehicle performance and handling.

**MEGR 4113. Energy Conversion I. (3)** Prerequisites: MEGR 3112 and MEGR 3114 with grades of C or above. *Technical Elective*. Application of principles of thermodynamics, fluid flow and heat transfer to internal combustion engines, compressors, turbines, heat exchanges, refrigeration, and cryogenics.

**MEGR 4127. Introduction to Robotics. (3)** Prerequisites: Senior standing in ME department. *Technical Elective*. Modeling of industrial robots, homogeneous transformations, static forces, kinematics, velocities, dynamics, computer animation

of dynamic models, motion trajectory planning, and introduction to vision, sensors and actuators.

**MEGR 4131. Solid State Transformations. (3)**  
Prerequisite: MEGR 3161 with grade of C or above. *Technical Elective.* Thermodynamics, morphology and kinetics of solid state transformations. Diffusion and absolute reaction rate theory; crystallographic nature of phase transformations; nucleation and growth processes; precipitation and oxidation reaction.

**MEGR 4143. Discrete Mechanical Vibrating Systems. (3)**  
Prerequisites: MEGR 3122 with grade of C or above. *Technical Elective.* Free and forced vibrations of lumped parameter systems with multi-degrees of freedom. Topics include: transient and steady state response, determination of natural frequencies and mode shapes with and without damping. Introduction to principal coordinates and matrix iteration techniques.

**MEGR 4144. Intermediate Dynamics. (3)**  
Prerequisites: MEGR 3121 and MATH 2171 with grades of C or above. *Technical Elective.* Further studies in dynamics of particles and rigid bodies, with engineering applications. Introduction to Lagrange's equations of motion. Multi-degree-of-freedom vibrations.

**MEGR 4162. Materials Production and Process. (3)**  
Prerequisites: MEGR 3161, with grade of C or above, and permission of instructor. *Technical Elective.* Applications of thermodynamics and chemistry to extractive process metallurgy. Fundamental principles of materials forming operations. Casting, mechanical working and joining methods.

**MEGR 4165. Introduction to Nondestructive Evaluation Methods. (3)**  
Prerequisite: MEGR 3161, with grade of C or above. *Technical Elective.* Nondestructive evaluation principles and techniques, including liquid penetrate, magnetic particle, acoustic emission, ultrasound, radiography and eddy currents.

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## Meteorology (METR)

**METR 3140. Introduction to Meteorology and Climatology. (3)**  
Prerequisite: ESCI 1101/1101L, or permission of instructor. Fundamental physical principles of weather and climate. Analysis of short and long term atmospheric behavior are introduced. Topics include: solar radiation, temperature, moisture, wind and pressure, synoptic systems, regional climates, paleoclimates, climatic change, and applied climatology.

**METR 3210. Atmospheric Thermodynamics. (3)**  
Prerequisites: METR 3140 with grade of C or above

and MATH 1241, or permission of instructor. The study of the physical processes associated with atmospheric thermodynamics and stability. Topics include: atmospheric composition, equation of state, hydrostatics, first and second laws of thermodynamics for dry, moist, and saturated air, atmospheric stability, parcel buoyancy, and thermodynamic diagrams. Three hours of combined lecture and lab per week.

**METR 3220. Physical Meteorology. (3)**  
Prerequisites: CHEM 1251 and METR 3210 with grades of C or above, or permission of instructor. Fundamentals of cloud and precipitation physics, atmospheric electricity, atmospheric chemistry and physics, atmospheric radiation, and radiative transfer. Three hours of combined lecture and lab per week.

**METR 3245. Synoptic Meteorology. (4)**  
Prerequisite: METR 3210 with grade of C or above, or permission of instructor. Principles of meteorological analysis; fundamental concepts of meteorology, thermodynamics, and kinematics are integrated to understand the structure and evolution of mid-latitude cyclones and fronts. Three hours of lecture and one three-hour lab per week.

**METR 3250. Dynamic Meteorology. (4)**  
Prerequisites: METR 3245 with grade of C or above, MATH 1242, and PHYS 2101; or permission of instructor. Principles of atmospheric dynamics including the equations of motion, circulation, vorticity, divergence, balanced and unbalanced flows, and the general circulation. Three hours of lecture and one three-hour lab per week.

**METR 3252. Weather Analysis Laboratory. (1)**  
Pre- or corequisite: METR 3245 and permission of instructor. Topics related to atmospheric observation, data collection, analysis, and techniques of weather forecasting. *May be repeated for credit.*

**METR 3330. Weather Forecasting. (3)**  
Prerequisite: METR 3245 or permission of instructor. Focuses on weather forecasting: real-time, short-term, and long-term. Verification techniques will be studied. Three hours of combined lecture and lab per week.

**METR 3340. Weather Communications. (3)**  
Pre- or corequisite: METR 3245 or permission of instructor. A survey of the field of weather communications covering weather forecasting principles, television and radio broadcasting, science writing, forensic meteorology, and forecasting for business applications. Three hours of combined lecture and lab per week.

**METR 4000. Selected Topics in Meteorology. (1-4)**  
Prerequisite: METR 3140 or permission of instructor. In-depth treatment of specific topics selected from

meteorology. *May be repeated for credit with change of topic.*

**METR 4150. Applied Climatology. (3) (W)**

Prerequisite: METR 3250 or permission of instructor. Methods of acquiring and analyzing climactic data in various types of applied problems. Emphasis on methods to assess and reduce the impact of weather and climate upon human activities. Three hours of combined lecture and lab per week.

**METR 4220. Atmospheric Chemistry. (3)**

Prerequisites: CHEM 1251 and MATH 1242 with grade of C or above, or permission of instructor. Basic physical chemistry and a survey of major topics in atmospheric chemistry including fundamental properties of the atmosphere, tropospheric chemistry, air pollution, acid rain, stratospheric chemistry and the ozone hole, and the role of chemistry in the Earth's climate. Three hours of combined lecture and lab per week.

**METR 4240. Boundary-Layer Meteorology. (3)**

Prerequisite: METR 3210 or permission of instructor. Examines the flow of mass, energy, and moisture within the planetary boundary layer including their exchange at the earth's surface and theories of interaction. Principles of air pollution including sources, sinks, and controls. Interaction of the atmosphere with underlying surfaces (i.e., soils, vegetation, oceans, glaciers). Design and operation of instruments used to monitor the atmosphere with an emphasis on practical application. Three hours of combined lecture and lab per week.

**METR 4245. Advanced Synoptic Meteorology. (3)**

Prerequisite: METR 3250 with grade of C or above, or permission of instructor. An integrated view of synoptic and dynamic meteorology focusing on advanced conceptual models and analysis techniques for mid-latitude weather systems and regional precipitation events. Three hours of combined lecture and lab per week.

**METR 4250. Advanced Dynamic Meteorology. (3)**

Prerequisites: METR 3250 with grade of C or above, MATH 2171, and MATH 2241; or permission of instructor. An in-depth examination of atmospheric dynamics, focusing on the structure and evolution of synoptic and mesoscale weather systems, wave dynamics (Rossby, topographic, inertia-gravity, etc.), scale-analysis, non-dimensional numbers, and atmospheric modeling. Three hours of combined lecture and lab per week.

**METR 4320. Tropical Meteorology. (3)**

Prerequisite: METR 3250 or permission of instructor. A comprehensive study of the tropical atmosphere,

including climatology, mean structure and circulation, air-sea energy exchange, cumulus transport, synoptic waves, and tropical storms. Special attention is paid to the formation, evolution, motion, and societal impacts of hurricanes. Three hours of combined lecture and lab per week.

**METR 4350. Mesoscale Meteorology. (3)**

Pre- or corequisite: METR 3250 or permission of instructor. A comprehensive study of the structure, evolution, and dynamics of atmospheric phenomena having spatial scales between 2 and 2000 km. Topics include: fronts, convective initiation, mesoscale convective systems, severe thunderstorms, tornadoes, low-level jets, drylines, land-sea breezes, shallow convection, and terrain effects. Three hours of combined lecture and lab per week.

**METR 4400. Internship in Meteorology. (3-6)**

Prerequisite: Permission of department. Research and/or work experience designed to be a logical extension of a student's academic program. The student must apply to department for an internship by submitting a proposal which specifies the type of work/research experience preferred and how the internship will complement his or her academic program. The department will attempt to place the selected students in cooperating community organizations to complete specified research or work-related tasks which are based on a contractual arrangement between the student and community organization. The student can receive three to six hours credit, depending on the nature and extent of the internship assignment.

**METR 4800. Individual Study in Meteorology. (1-4)**

Prerequisites: Permission from the department and credit hours established in advance; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Tutorial study or special research problems. Students must request permission for independent study from an individual faculty member. *May be repeated for credit with change of topic.*

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## Management (MGMT)

**MGMT 3000. Topics in Management. (3)**

Prerequisite: Junior standing. Topics from the area of Management and Administration. *May be repeated for credit.*

**MGMT 3140. Management and Organizational Behavior. (3)**

Prerequisites: ACCT 2121, 2122; ECON 2101, 2102, INFO 2130; Junior standing. A study of the role of manager with an emphasis on understanding the behavioral and administrative

theories and concepts needed to succeed in contemporary organizations. Topics covered in the course include motivation, leadership, managing teams, and teamwork.

**MGMT 3170. Ethics and Global Capitalism. (3)** Cross-listed as ECON 3170. Prerequisite: Junior standing. The course is a study of ethical arguments supporting and critical of capitalist economic and social systems. Topics to be addressed may include property rights, justice, desert, equality, and sustainable capitalism.

**MGMT 3241. Acquiring and Maintaining Talent. (3)** Prerequisite: MGMT 3140 with grade of C or above. Concepts, methods, and issues used in effectively managing human resources in contemporary organizations with a focus on workforce planning, recruitment and selection, organizational entry, socialization, diversity, and the legal environment. Experience in developing and utilizing behavioral science research methods to assess effectiveness.

**MGMT 3242. Developing and Retaining Talent. (3)** Prerequisite: MGMT 3140 with grade of C or above. Concepts, methods, and issues used in effectively managing human resources in contemporary organizations with a focus on performance assessment, training and development, change, and performance management, compensation and benefits, and retention. Experience in developing and utilizing behavioral science research methods to assess effectiveness.

**MGMT 3243. Employment Law. (3)** Cross-listed as ECON 3107. Prerequisite: MGMT 3140 with grade of C or above. This course examines the legislation which impacts human resource management practices in union and non-union settings. Topics covered include fair employment practices, anti-discrimination law, representation elections, unfair labor practices, compensation and benefit legislation, privacy concerns and dispute settlement processes.

**MGMT 3260. Managerial Communication. (3)** Prerequisites: MGMT 3140 with grade of C or above and COMM 3160. Develop an understanding of the use and influence of communication skills, processes and strategies in effective managerial decision making. A practical approach is employed to develop written, oral, nonverbal, listening, team, conflict, and negotiation skills in organizational situations.

**MGMT 3274. International Business Processes and Problems. (3)** Prerequisite: MGMT 3140 with grade of C or above. Management Majors and International Business Majors. Junior standing. An introduction to the process, institutions and problems associated with

exporting, importing and management of multinational businesses.

**MGMT 3275. International Management. (3)** Prerequisites: MGMT 3140 with grade of C or above. Preparation for effective management in a world characterized by intense international competition. Case studies, projects, and presentations assist students to apply concepts and theories.

**MGMT 3277. Entrepreneurship. (3)** Prerequisites: MGMT 3140 with grade of C or above. A study of the factors leading to entrepreneurial success with an emphasis on opportunity identification, structure and planning, and the management of new ventures. Provides tools necessary to understand and evaluate the entrepreneurial process within a large company, new venture, family business, or growing a small business.

**MGMT 3280. Strategic Management. (3)** Prerequisites: Senior standing; BLAW 3150, COMM 3160, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MKTG 3110, and OPER 3100. (Accounting majors are required to take BLAW 3150, COMM 3160, FINN 3120, INFO 3130, MGMT 3140, MKTG 3110, and OPER 3100 and earn a grade of C or above.) A capstone course that emphasizes the synthesis and application of concepts from the functional business courses so students develop an understanding of organizations from the perspective of top level executives. Focuses on the role of top management in leading, planning, and decision-making to form effective organizational strategies that integrate internal processes and the economic, technological, ethical, political, and social forces affecting the organization.

**MGMT 3282. Managerial Ethics. (3)** Prerequisites: MGMT 3140 with grade of C or above. A study of the impact of management decisions on customers, employees, creditors, shareholders, community interests, ecology, and government (including taxes and the regulatory environment). The objective is to provide future managers with a systematic way of analyzing the impact of management decisions on larger society.

**MGMT 3287. Managerial Leadership. (3)** Prerequisites: MGMT 3140 and MGMT 3282 with grades of C or above; and completion of any two MGMT electives. A capstone course for the management major that provides a managerial perspective on leadership in formal organizations. Emphasis is placed on team-building, exercising influence, decision-making, and conflict management. Pedagogical tools to be used include role playing, case analyses, self-assessment of leadership competencies, and shadowing of working managers.

**MGMT 3400. Management Internship. (0-6)**

Prerequisite: Junior or Senior in good standing and department approval. Full- or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Requires 50 hours of supervised working for the internship organization per hour of credit. Each student's internship program must be approved by the supervising Management faculty member. A proposal form must be completed and approved prior to registration and the commencement of the work experience. Participating students are required to submit a mid-term report and a final report to the supervising faculty member. The supervising faculty member discusses and documents expectations for both reports with the student prior to the commencement of the internship. Both the mid-term and final report are graded by the supervising faculty member who consult with the off-campus supervisor at the internship organization. *Graded on a Pass/No Credit basis.* A maximum of three credit hours may be used to meet requirements of a major elective, with the remaining credits counting toward a general elective.

**MGMT 3500. Management Cooperative Education and 49ership Experience. (0)**

Prerequisite: Management major. Enrollment in this course is required for the department's cooperative education and 49ership/service 49ership students during each semester they are working in a position. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**MGMT 3800. Directed Study. (1-6)**

Prerequisites: Permission of department chair and Junior standing. Enrollment granted only by permission of the faculty with whom the work is performed. The student's work assignments are designed by the student and faculty member who oversee the project of study. Credit hours are determined prior to enrollment and are based on the particular project undertaken.

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## Marketing (MKTG)

**MKTG 2210. Marketing Careers. (2)** An overview

course for undergraduate students in any major. It's designed to expose students to the "Real World" of marketing and the vast career options available. Through executive speakers, panel presentations, and readings, students explore the incredibly diverse and exciting world of marketing. Recommended for the sophomore year as the student investigates majors.

**MKTG 3000. Topics in Marketing. (3)** Prerequisite: MKTG 3110 with grade of C or above, or permission of department chair. Topics from the area of marketing. *May be repeated for credit with change of topic.*

**MKTG 3110. Marketing Concepts. (3)** Prerequisites: ACCT 2121, ACCT 2122, ECON 2101, ECON 2102, INFO 2130, MATH 1120, and STAT 1220 with grades of C or above; Junior standing. Designed to acquaint the student with the marketing concept, various aspects of the marketing-external environment interface, and interrelatedness with other functional areas. Provides marketing majors with a foundation for further study, while offering non-marketing majors a survey of marketing's function in business organizations.

**MKTG 3221. Consumer Behavior and Strategy. (3)**

Prerequisite: MKTG 3110 with grade of C or above. Examination of consumer decision-making processes in the purchase, usage and disposal of goods, services and ideas. Emphasis on understanding consumption-related behaviors and the development and evaluation of marketing strategies intended to influence those behaviors. Particular focus on managing changes in consumption behavior.

**MKTG 3222. Marketing Analysis and Decision Making. (3)**

Prerequisites: MKTG 3110 with grade of C or above, and STAT 1220. An applications course that covers the entire research process including problem identification, secondary and primary data collection, scaling techniques, survey questionnaire design, reliability and validity, experimental design, sampling, data analysis, and data communication.

**MKTG 3223. Creativity and Innovation in Marketing. (3)**

Prerequisite: MKTG 3110 with grade of C or above. In an increasingly competitive global environment, successful marketing organizations have embraced creativity and innovation to enhance strategic adaptability. Continuously developing new products, services, business models and strategies enhances competitive advantage. This course begins with creativity as the starting point for innovation, exploring ways to enhance individual, team and organizational creativity as it pertains to marketing decisions and strategies. Students engage in exercises and a project that concretize the creativity and innovation process in marketing activities.

**MKTG 3224. Branding and Product Strategy. (3)**  
Prerequisite: MKTG 3110 with grade of C or above. Emphasis on branding, brand management, and brand equity. Covers measurement of brand equity sources and outcomes. Particular focus on designing brand strategies, introducing and naming new products and extensions, and the new product development process.

**MKTG 3225. Advertising and Promotions. (3)**  
Prerequisites: MKTG 3110 with grade of C or above. Covers all areas of marketing promotion, including such topics as advertising, media selection, packaging and sales promotion. Offers basic skills and techniques to allow the student to enter careers in advertising or media.

**MKTG 3226. Sales and Negotiations. (3)**  
Prerequisite: MKTG 3110 with grade of C or above. An overview of skills and knowledge involved in individual selling and management of sales programs, including sales management theories and their applications. Emphasis on both buyer and seller negotiation techniques.

**MKTG 3227. Retailing and Logistics Management. (3)**  
Prerequisite: MKTG 3110 with grade of C or above. Examination of the professional management of retail institutions and logistics from the perspective of a professional manager and an entrepreneur. In terms of retailing content, includes a topical analysis of the retail mix; trade and site analysis; merchandise selection and display; services; store layout; promotional, pricing, and financial policies. In terms of logistics content, includes ways to plan and manage supply chains, transportation, and distribution of goods and services.

**MKTG 3228. Marketing Analytics. (3)** Prerequisite: MKTG 3110 with grade of C or above. Emphasis on analyzing interactions of consumers, firms, and society. Focus on interpreting results. Particular emphasis on analyzing data related to market response, customer segmentation, customer targeting, brand positioning, and pricing and promotion decisions.

**MKTG 3229. Internet Marketing and Analytics. (3)**  
Prerequisite: MKTG 3110 with grade of C or above. Emphasis on developing successful Internet marketing strategy based on quantitative and qualitative analysis of customer, competitors and channel members. Incorporates online and offline communication media and hands-on experience with Internet applications.

**MKTG 3230. Social Media Marketing. (3)**  
Prerequisite: MKTG 3110 with grade of C or above. Emphasis on using social media for marketing purposes. Particular focus on key performance

indicators, campaign creation, social marketing program optimization, and web analytics related to social media.

**MKTG 3231. Global Marketing Management. (3)**  
Prerequisite: MKTG 3110 with grade of C or above. Emphasis on the assessment of global market opportunities, development of global market strategies, and implementation of global market plans. Topics include: the examination of cultural, social, legal, political, financial, and geographical environments. The marketing mix elements are studied in the global environment.

**MKTG 3232. Sports Marketing. (3)** Prerequisite: MKTG 3110 with grade of C or above. Covers strategies necessary for success in marketing sports events, products and services. Builds knowledge, skills, and practical understanding of the nature, contexts and dynamics of sports marketing. Critical exploration of sports product, pricing, promotion, and distribution, and the strategies available to sports and sports-related businesses.

**MKTG 3234. Customer Data Mining and Marketing Metrics. (3)** Prerequisite: MKTG 3110 with grade of C or above. Emphasis on techniques to identify new marketing opportunities and better connect with customers. Particular emphasis on the analysis of databases and use of marketing dashboards and scorecards. Topics include: text and Web mining, market basket analysis, and profiling and predictive modeling.

**MKTG 3250. Marketing Strategy Consultancy. (3)**  
Prerequisites: MKTG 3110 with grade of C or above, completion of at least three marketing elective courses, and Senior standing. Integration of all marketing elements in a strategic planning framework. Emphasis on areas of strategic importance, especially those which have significant implications and relevance for marketing policy decisions in competitive situations.

**MKTG 3251. Marketing Analytics Consultancy. (3)**  
Prerequisites: MKTG 3110 with grade of C or above, completion of at least three marketing elective courses in the marketing analytics track, and Senior standing. Integration of all marketing elements in a strategic planning framework. Emphasis on areas of strategic importance, especially those which have significant implications and relevance for marketing policy decisions in competitive situations.

**MKTG 3260. AMA Professional Marketing Certification. (1)** Prerequisites: completed undergraduate degree and four years of professional experience; additional course fee of \$535 for American Marketing Association application and examination fee.

Prepares students to take the AMA Professional Certified Marketer (PCM) Examination. This course is designed around the topics covered on the PCM exam. Topics to be reviewed for the exam include: legal/ethical issues; information management; assessment and planning of the strategic marketing process; and marketing evaluation.

**MKTG 3400. Marketing Internship. (3)**  
Prerequisites: Junior and Senior marketing majors in good standing; MKTG 3110 with grade of C or above plus two Marketing electives; and permission of department of Marketing Internship Coordinator. Provides a meaningful work experience in an area of marketing. Requires 150 hours of supervised employment - 50 hours per credit hour. Internship proposals can be initiated by the student or by the department internship coordinator. Students should consult the department internship coordinator well in advance of registration to discuss availability of positions. Proposal forms must be completed and approved prior to registration. *Graded on a Pass/No Credit basis.* Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit.

**MKTG 3500. Marketing Cooperative Education and 49ership Experience. (0)** Prerequisite: Marketing major. Enrollment in this course is required for the department's cooperative education and 49ership/service 49ership students during each semester they are working in a position. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**MKTG 3800. Directed Study. (1-3)** Prerequisites: Permission of department and Junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken. The proposal must be approved by the department chair.

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## Military Science (MSCI)

**MSCI 1101. Leadership and Personal Development. (1)** Corequisite: MSCI 1101L. Introduces students to the personal challenges and competencies that are critical for effective leadership. Students learn how the personal development of life skills such as cultural understanding, goal setting, time management, mental resiliency, physical fitness, and stress management relate to leadership and the Army profession. Includes instruction in map reading, land navigation, and customs and courtesies of the Army. Participation in leadership lab is required. There is no military obligation to take this course; open to all UNC Charlotte and CAEC consortium students.

**MSCI 1101L. Leadership and Personal Development Lab. (1)** Corequisite: MSCI 1101. Students learn the basic fundamentals in being a member of a team. This is taught through multiple venues, including drill and ceremony, land navigation, weapons familiarization, basic rifle marksmanship, medical tasks, individual movement techniques, engaging targets, understanding Army acronyms, hand and arm signals, reactive leadership, and radio protocol procedures. Freshmen learn basic leadership skills and master the fundamentals of being a follower.

**MSCI 1102. Introduction to Leadership. (1)** Corequisite: MSCI 1102L. Overview of leadership fundamentals such as setting direction, the profession of arms, listening, presenting briefs, providing feedback, and using effective writing skills. Students explore dimensions of leadership attributes and core leader competencies in the context of practical, hands-on, and interactive exercises. Cadets who are contracted or conditionally contracted by the end of their Freshman year may be required to attend Cadet Initial Entry Training (CIET) at Fort Knox, KY, during the summer. Participation in leadership lab is required. There is no military obligation to take this course; open to all UNC Charlotte and CAEC consortium students.

**MSCI 1102L. Introduction to Leadership Lab. (1)** Corequisite: MSCI 1102. Students learn the basic fundamentals in being a member of a team. This is taught through multiple venues including drill and ceremony, land navigation, weapons familiarization, basic rifle marksmanship, medical tasks, individual movement techniques, engaging targets, introduction to the orders process, understanding Army acronyms, hand and arm signals, basic military tactics, and radio protocol procedures. Freshmen learn basic leadership skills and master the fundamentals of being a follower.

**MSCI 2101. Innovative Team Leadership. (2)** Corequisite: MSCI 2101L. Explores the dimensions of creative and innovative tactical leadership strategies

and styles by examining team dynamics and historical leadership theories that form the basis of the Army leadership framework. Students practice aspects of personal motivation and team building in the context of planning, executing, and assessing team exercises and participating in leadership labs. Includes instruction in troop leading procedures, tactical movement, squad level operations, battle drills, and problem solving. Participation in leadership lab is required. There is no military obligation to take this course; open to all UNC Charlotte and CAEC consortium students.

**MSCI 2101L. Innovative Team Leadership Lab. (1)**  
Corequisite: MSCI 2101. Students become proficient in the basic fundamentals and are introduced to leading a small team. This is taught through multiple venues including advanced land navigation, survival skills, building terrain models, medical skills, movement formations, movement techniques, special teams, writing operations orders, situation reporting, call for fire, and introduction to battle drills. Sophomores focus on mentoring freshmen and serve as team leaders.

**MSCI 2102. Foundations of Tactical Leadership. (2)**  
Corequisite: MSCI 2102L. Examines the challenges of leading teams in the complex operational environment. The course highlights dimensions of terrain analysis, patrolling, route planning, and operations orders. Further study of the Army Leadership Requirements Model explores the dynamics of adaptive leadership in the context of military operations. Participation in leadership lab is required. There is no military obligation to take this course; open to all UNC Charlotte and CAEC consortium students.

**MSCI 2102L. Foundations of Tactical Leadership Lab. (1)** Corequisite: MSCI 2102. Students become proficient in the basic fundamentals and are introduced to leading a squad-based element. This is taught through multiple venues including advanced land navigation, building terrain models, advanced rifle marksmanship, medical skills, movement formations, movement techniques, special teams, writing operations orders, situation reporting, call for fire, and introduction to battle drills. Sophomores focus on mentoring freshmen and serve as team leaders.

**MSCI 3101. Adaptive Team Leadership. (3)**  
Prerequisite: Basic Course credit. Corequisite: MSCI 3101L. Academically challenging course where Cadets study, practice, and apply the fundamentals of Army leadership, Army values and ethics, personal development, and small unit tactics at the squad level. At the conclusion of this course, cadets will be capable of planning, coordinating, navigating, motivating and leading a 9-person squad in the execution of a tactical mission during a classroom practical exercise, a

leadership lab, or during a situational training exercise (STX) in a field environment. Successful completion of this course helps prepare cadets for success at the ROTC Cadet Leader Course (CLC) which they attend the following summer at Fort Knox, KY. Cadets receive systematic and specific feedback on their leader attributes, values and core leader competencies from their instructor, other ROTC cadre, and MSIV Cadets who evaluate them using the ROTC leader development program (LDP) model. Cadets will be tasked with managing the training of MS II cadets based on direction from MS IV cadets. Course includes instruction in squad operations, problem solving, and combat orders. Participation in leadership lab is required.

**MSCI 3101L. Adaptive Team Leadership Lab. (1)**  
Corequisite: MSCI 3101. Challenging scenarios related to small-unit tactical operations are used to develop self-awareness and critical thinking skills. The cadet will receive systematic and specific feedback on leadership abilities. Cadets at this level serve as the Non-Commissioned Officer (NCO) Corps of the ROTC Battalion; they plan, rehearse, and lead basic course cadets through the program of instruction. Juniors are the executors of the battalion. Cadets also work on skills that help them succeed at CLC. Those skills include Land Navigation and Squad Level Leadership Tactics.

**MSCI 3102. Applied Team Leadership. (3)**  
Prerequisite: MSCI 3101. Corequisite: MSCI 3102L. A continuation of MSCI 3101, where Cadets study, practice, and apply the fundamentals of Army leadership, Army values and ethics, personal development, and small unit tactics at the patrol/platoon level. At the conclusion of this course, cadets will be capable of planning, coordinating, navigating, motivating and leading a 24-person patrol in the execution of a tactical mission during a classroom practical exercise, a leadership lab, or during a situational training exercise (STX) in a field environment. Successful completion of this course helps prepare cadets for success at the ROTC Cadet Leader Course (CLC) which they attend the following summer at Fort Knox, KY. Cadets receive systematic and specific feedback on your leader attributes, values and core leader competencies from their instructor, other ROTC cadre, and MSIV Cadets who evaluate them using the ROTC leader development program (LDP) model. Course includes instruction in platoon operations, stability and support operations, and garrison orders. Participation in leadership lab is required.

**MSCI 3102L. Applied Team Leadership Lab. (1)**  
Corequisite: MSCI 3102. Specific instruction is given in individual leader development, planning and

execution of small-unit operations, individual and team development, and the Army as a career choice. Prepares cadets for the mandatory 32-day Cadet Leader Course (CLC) at Fort Knox, KY, during the summer between their Junior and Senior academic years.

**MSCI 4101. Developing Adaptive Leaders. (3)**

Prerequisites: MSCI 3101 and MSCI 3102. Corequisite: MSCI 4101L. Cadets explore the dynamics of leading in the complex situations of current military operations. They examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. They also explore aspects of interacting with non-government organizations, civilians on the battlefield, the decision making processes and host nation support. Participation in leadership lab is required. Mandatory for all Senior ROTC cadets.

**MSCI 4101L. Developing Adaptive Leaders Lab. (1)**

Corequisite: MSCI 4101. Cadets lead cadets at lower levels. Leadership experiences are designed to prepare them for their first military unit of assignment. Identify responsibilities of key staff members, coordinate staff roles amongst twelve separate universities and colleges that make up the ROTC battalion, and use battalion field/garrison situations to teach, train, and develop subordinates. Seniors are the battalion's staff, primary supervisors and planners, preparing to transition to Second Lieutenants.

**MSCI 4102. Leadership in a Complex World. (3)**

Prerequisite: MSCI 4101. Corequisite: MSCI 4102L. Cadets identify the leaders roles and responsibilities for enforcing Army policies and programs. Also covers how to manage Comprehensive Soldier Fitness (CSF). Cadets also explore the dynamics of building a team prepared to handle any future operational environment and win, as well as examine the importance of understanding culture and how it affects the overall mission. Cadets develop both oral and written communication skills by conducting a battle analysis and decision briefs. Participation in leadership lab is required. Mandatory for all Senior ROTC cadets.

**MSCI 4102L. Leadership in a Complex World Lab. (1)**

Corequisite: MSCI 4102. A continuation of responsibilities listed in MSCI 4101L. The leadership lab uses case studies, scenarios, and tactical vignettes to prepare cadets to face the complex ethical and practical demands of leading as a commissioned officer in the United States Army.

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## Music Education (MUED)

**MUED 2100. Introduction to Music Education. (2)**

Introduction to the organization and various

types/levels of music education. Overview of the ethical, legal, and instructional issues related to diversity in the classroom. A minimum of ten hours of community service is required.

**MUED 2141. Music Development and Learning. (2)**

Prerequisite: MUED 2200. Teaches music educators how to deliver developmentally appropriate music instruction in grades K-12. Students will explore and manipulate teaching strategies through various researched perspectives of: (1) developmental learning theory; (2) music acquisition/learning theories; and (3) teaching music to students with special needs. A field component of ten hours minimum is required. Three contact hours.

**MUED 2200. Foundations of Music Education. (2)**

Prerequisite: MUED 2100. Introduction to the social, historical, and philosophical foundations of music education, major issues in American education, music education research, and instruction planning in music education. A minimum of ten hours of community service is required.

**MUED 4190. Choral Methods. (2)**

Prerequisites: MUSC 2400, MUSC 3135, and MUSC 4137. Corequisite: MUED 4190L. Rehearsal techniques, repertoire, and administration of school choral programs. Three contact hours.

**MUED 4190L. Choral Methods Lab. (1)**

Prerequisite: MUSC 2400. Corequisite: MUED 4190. Application of rehearsal methods with collegiate and public school choral ensembles. 10 hours of additional outside fieldwork required. Three contact hours. *May be repeated for credit.*

**MUED 4192. General Music Methods. (2)**

Prerequisite: MUSC 2400. Corequisite: MUED 4192L. General music methods and materials for elementary grades through high school. Primary focus on elementary school general music, but extends into teaching general music and non-performance based music courses in grades 6-12. Students experience current school music theories and approaches to general music teaching. Materials are also explored and discussed.

**MUED 4192L. General Music Methods Lab. (1)**

Prerequisite: MUSC 2400. Corequisite: MUED 4192. Clinical application of general music teaching concepts in the public school setting. A minimum of 10 hours in the field are required.

**MUED 4194. Instrumental Methods. (2)**

Prerequisites: MUSC 1223, MUSC 1225, MUSC 1227, MUSC 1229, and MUSC 3136. Corequisite: MUED 4194L. Rehearsal techniques, repertoire, teaching

strategies, methods, and materials of teaching and administering an instrumental music program in the public school. Three contact hours.

**MUED 4194L. Instrumental Methods Lab. (1)** Pre- or corequisite: Four semesters of MUPF 1117. Corequisite: MUED 4194. Clinical application of rehearsal methods with collegiate and public school instrumental ensembles. A minimum of 10 hours in the field are required.

**MUED 4270. Teaching Discipline: Assessment and Behavior in the Music Classroom. (2)** Prerequisite: MUSC 2400. Students develop specific quantitative and qualitative methods that address unique discipline, teaching, and assessment concerns inherent in a music classroom with typical and diverse populations of students. A minimum of 10 hours of clinical experience observing and teaching students with special needs is required. Three contact hours.

**MUED 4467. Student Teaching/Seminar: K-12 Music. (12)** Prerequisite: approved application for student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade level setting.

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## Music Performance (MUPF)

**MUPF 1040-1059. Applied Music for Minors.** Courses consist of private instruction, a half-hour lesson per week or a one-hour lesson every two weeks, leading to formal jury at the end of the semester. *May be repeated for credit. Students must enroll in an approved principal ensemble concurrently (see the Department of Music Student Handbook for details.)*

**MUPF 1040. Applied Music for Minors: Euphonium. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1041. Applied Music for Minors: Trumpet. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1042. Applied Music for Minors: French Horn. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1043. Applied Music for Minors: Trombone. (1)** Prerequisite: Music minor or permission of

instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1044. Applied Music for Minors: Tuba. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1045. Applied Music for Minors: Guitar. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1046. Applied Music for Minors: Harp. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1047. Applied Music for Minors: Organ. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1048. Applied Music for Minors: Piano. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1049. Applied Music for Minors: Violin. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1050. Applied Music for Minors: Viola. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1051. Applied Music for Minors: Cello. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1052. Applied Music for Minors: Bass. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1053. Applied Music for Minors: Voice. (1)** Prerequisite: Acceptance of a music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1054. Applied Music for Minors: Flute. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1055. Applied Music for Minors: Clarinet. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1056. Applied Music for Minors: Saxophone. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1057. Applied Music for Minors: Oboe. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1058. Applied Music for Minors: Bassoon. (1)** Prerequisite: Music minor or permission of instructor. Corequisite: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1059. Applied Music for Minors: Percussion. (1)** Prerequisite: Music minor or permission of instructor. Corequisites: an approved principal ensemble. *May be repeated for credit.*

**MUPF 1110. Symphony Orchestra. (1)** Prerequisite: audition. An 80-member, full symphony orchestra open to advanced string, wind, and percussion players from any major. Performs standard symphonic works from the Baroque period through the present. *May be repeated for credit.* Three contact hours.

**MUPF 1111. Jazz Ensemble. (1)** Prerequisite: audition. Corequisite: MUPF 1111L. An ensemble specializing in performance and study of music composed for standard "big band" instrumentation. Performs music styles from the Swing era to present day. *May be repeated for credit.* Three contact hours.

**MUPF 1111L. Jazz Ensemble Sectional Rehearsals. (0)** Corequisite: MUPF 1111. Sectional rehearsals for MUPF 1111. *May be repeated for credit.*

**MUPF 1112. Wind Ensemble. (1)** Prerequisite: Audition. Corequisite: MUPF 1112L. A performing ensemble open to advanced wind and percussion players from any major. Performs traditional and contemporary band literature in concerts a minimum of twice per semester. Occasional concert tours and performances for important regional music events. *May be repeated for credit.* Three contact hours.

**MUPF 1112L. Wind Ensemble Sectional Rehearsals. (0)** Corequisite: MUPF 1112. Sectional rehearsals for MUPF 1112. *May be repeated for credit.*

**MUPF 1113. Symphonic Band. (1)** A performing

ensemble open to students from any major with experience playing wind and percussion instruments. No formal audition required, only a simple hearing to determine chair placement. Performs traditional and contemporary band literature in one concert each semester. *May be repeated for credit.* Three contact hours.

**MUPF 1114. Basketball Band. (1)** Prerequisite: permission of instructor. A performing ensemble for University athletic contests and other campus events. *May be repeated for credit.* Three contact hours.

**MUPF 1115. Guitar Ensemble. (1)** Prerequisite: permission of instructor. A performing ensemble. *May be repeated for credit.* Three contact hours.

**MUPF 1117. Instrumental Lab Ensemble. (0)** Students meet to create a beginning band or orchestra for the purposes of rehearsing on a secondary instrument in an ensemble format. This format also allows student conductors in instrumental conducting and methods the opportunity to rehearse and conduct a novice ensemble. *Graded on a Pass/No Credit basis. May be repeated.* Four semesters of MUPF 1117 are required for the B.M. with Concentration in Instrumental/General Music Education.

**MUPF 1118. Marching Band. (1)** Weekly rehearsals and performances at football games and other university/community events. Pre-season camp and performances outside of class are required. *May be repeated for credit.* Three contact hours.

**MUPF 1119. Special Instrumental Ensemble. (1)** Prerequisite: Acceptance as a music major and permission of instructor. An alternative to traditional ensembles listed above for students with specialized performance interests. *May be repeated for credit.* Three contact hours.

**MUPF 1120. University Chorale. (1)** Prerequisite: audition. Corequisite: MUPF 1120L. A mixed chorus that performs music of many styles from the Baroque period to the present. The enrollment ranges from 46 to 58 voices. Open to all UNC Charlotte students with extensive choral experience. *May be repeated for credit.* Three contact hours.

**MUPF 1120-001.** University Chorale Soprano Section (enrollment cap 14)

**MUPF 1120-002.** University Chorale Alto Section (enrollment cap 12)

**MUPF 1120-003.** University Chorale Tenor Section (enrollment cap 8)

**MUPF 1120-004.** University Chorale Bass Section (enrollment cap 12)

**MUPF 1120L. University Chorale Sectional**

**rehearsals. (0)** Corequisite: MUPF 1120. Sectional rehearsals for MUPF 1120. *May be repeated for credit.*

**MUPF 1121. Chamber Singers. (1)** Prerequisite: audition. A highly-select mixed ensemble that ranges in size from 15 to 26 voices. This ensemble specializes in virtuosic literature from the Renaissance, Early Baroque, and Contemporary periods. Open to all UNC Charlotte students. A full-year commitment is expected. *May be repeated for credit.* Three contact hours.

**MUPF 1122. Men's Chorus (Mallard Creek Chorale). (1)** The Mallard Creek Chorale is a popular performing ensemble for men in the glee tradition. It draws upon majors from across campus and performs several times each semester - including occasionally performing off campus and at athletic events. The ensemble performs folk, spirituals, Broadway, patriotic, barbershop, du-wop, and other musical styles traditional for men's choruses. This ensemble is open to all male UNC Charlotte students with an interest in singing. Special emphasis is placed on building vocal technique and sight singing ability. *May be repeated for credit.* Three contact hours.

**MUPF 1123. Women's Glee (Charlotteans). (1)** The Charlotteans is open to all female UNC Charlotte students with an interest in singing. This ensemble performs a vast array of music from Renaissance through contemporary composers. Emphasis is placed on building vocal technique and sight singing ability. *May be repeated for credit.* Three contact hours.

**MUPF 1124. Opera Workshop. (1)** Prerequisite: audition. Performance of scenes, acts, and entire operas. *May be repeated for credit.* Three contact hours.

**MUPF 1128. Special Vocal Ensemble. (1)** Prerequisite: acceptance as a music major and permission of instructor. An alternative to the traditional ensembles listed above for students with specialized experience. Enrollment restricted to music majors. *May be repeated for credit.* Three contact hours.

**MUPF 1132. Wind Quintet. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the wind quintet repertoire. *May be repeated for credit.*

**MUPF 1133. Flute Quartet. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the flute quartet repertoire. *May be repeated for credit.*

**MUPF 1134. Flute Choir. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the flute choir repertoire. *May be repeated for credit.*

**MUPF 1136. Clarinet Choir. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the clarinet choir repertoire. *May be repeated for credit.*

**MUPF 1137. Saxophone Quartet. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the saxophone quartet repertoire. *May be repeated for credit.*

**MUPF 1139. Woodwind Chamber Music. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the woodwind chamber music repertoire. *May be repeated for credit.*

**MUPF 1142. Brass Quintet. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the brass quintet repertoire. *May be repeated for credit.*

**MUPF 1146. Tuba/Euphonium Ensemble. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the tuba/euphonium repertoire. *May be repeated for credit.*

**MUPF 1149. Brass Chamber Music. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the brass chamber music repertoire. *May be repeated for credit.*

**MUPF 1150. Honors Percussion Ensemble. (1)** Prerequisite: Audition. An advanced performing ensemble that focuses on the percussion ensemble repertoire. *May be repeated for credit.*

**MUPF 1151. Percussion Ensemble. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the percussion ensemble repertoire. *May be repeated for credit.*

**MUPF 1152. Mallet Keyboard Ensemble. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the mallet keyboard repertoire. *May be repeated for credit.*

**MUPF 1155. Piano Ensemble. (1)** Prerequisite: Permission of instructor. A performing ensemble that focuses on the piano ensemble repertoire. *May be repeated for credit.*

**MUPF 1160. Chamber Orchestra. (1)** Prerequisite: audition. An elite 14-member ensemble that plays advanced string orchestra works and collaborates with

the choral and opera programs, open to advanced string students from any major. *May be repeated for credit.*

**MUPF 1161. Bonnie Cone String Quartet. (1)**  
Prerequisite: Audition. An advanced performing ensemble that focuses on the string quartet repertoire. *May be repeated for credit.*

**MUPF 1168. Philharmonia. (1)** A performing ensemble open to string players from any major. Performs string orchestra repertoire from the Baroque period through the present. Emphasis is placed on developing techniques and sight-reading ability. *May be repeated for credit.*

**MUPF 1169. String Chamber Music. (1)**  
Prerequisite: Permission of instructor. A performing ensemble that focuses on the string chamber music repertoire. *May be repeated for credit.*

**MUPF 1170. Jazz Combo. (1)** Prerequisite: Permission of instructor. A small performing ensemble that focuses on jazz repertoire and improvisation. *May be repeated for credit.*

**MUPF 1175. Vocal Jazz Ensemble. (1)** Prerequisite: Permission of instructor. A small performing ensemble that focuses on vocal jazz repertoire and improvisation. *May be repeated for credit.*

**MUPF 1199. Vocal Chamber Music. (1)**  
Prerequisite: Permission of instructor. A performing ensemble that focuses on the vocal chamber music repertoire. *May be repeated for credit.*

**MUPF 1240-1259. Applied Music.** *Courses consist of private instruction, a one-hour lesson per week, leading to a formal jury at the end of the semester. May be repeated for credit. Students must enroll in MUSC 1300 and an approved principal ensemble concurrently (see the Department of Music Student Handbook for details).*

**MUPF 1240. Applied Music: Euphonium. (2)**  
Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1241. Applied Music: Trumpet. (2)**  
Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1242. Applied Music: French Horn. (2)**  
Prerequisite: Acceptance as a music major or

permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1243. Applied Music: Trombone. (2)**  
Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1244. Applied Music: Tuba. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1245. Applied Music: Guitar. (2)**  
Prerequisite: Acceptance of a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1246. Applied Music: Harp. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1247. Applied Music: Organ. (2)**  
Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1248. Applied Music: Piano. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1249. Applied Music: Violin. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1250. Applied Music: Viola. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1251. Applied Music: Cello. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1252. Applied Music: Bass. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1253. Applied Music: Voice. (2)** Prerequisite: Acceptance of a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1254. Applied Music: Flute. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1255. Applied Music: Clarinet. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1256. Applied Music: Saxophone. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1257. Applied Music: Oboe. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1258. Applied Music: Bassoon. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 1259. Applied Music: Percussion. (2)** Prerequisite: Acceptance as a music major or permission of instructor. Corequisites: MUSC 1300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 2241-2259. Applied Music: Jazz.** Courses consist of private instruction in jazz, a half-hour lesson per week or an hour lesson every two weeks, leading to a formal jury at the end of the semester. *May be repeated for credit. Students must enroll in an approved principal ensemble (see the Department of Music Student Handbook for details) concurrently.*

**MUPF 2241. Applied Music: Jazz Trumpet. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 2243. Applied Music: Jazz Trombone. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 2245. Applied Music: Jazz Guitar. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 2248. Applied Music: Jazz Piano. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 2252. Applied Music: Jazz Bass. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 2256. Applied Music: Jazz Saxophone. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 2259. Applied Music: Jazz Percussion. (1)** Prerequisite: Acceptance into the Undergraduate Certificate in Jazz program or permission of instructor. Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 3240-3259. Advanced Applied Music.** Courses consist of advanced private instruction, a one-hour lesson per week, leading to a formal jury at the end of the semester. *May be repeated for credit. Students must enroll in MUSC 3300 and an approved principal ensemble concurrently, (see the Department of Music Student Handbook for details).*

**MUPF 3240. Advanced Applied Music: Euphonium. (2)** Prerequisite: MUSC 2400 and permission of instructor. Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3241. Advanced Applied Music: Trumpet. (2)** Prerequisite: MUSC 2400 and permission of instructor. Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3242. Advanced Applied Music: French Horn. (2)** Prerequisite: MUSC 2400 and permission of instructor. Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3243. Advanced Applied Music: Trombone. (2)** Prerequisite: MUSC 2400 and permission of

instructor. Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3244. Advanced Applied Music: Tuba. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3245. Advanced Applied Music: Guitar. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3246. Advanced Applied Music: Harp. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3247. Advanced Applied Music: Organ. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3248. Advanced Applied Music: Piano. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisite: An approved principal ensemble. *May be repeated for credit.*

**MUPF 3249. Advanced Applied Music: Violin. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3250. Advanced Applied Music: Viola. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3251. Advanced Applied Music: Cello. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3252. Advanced Applied Music: Bass. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3253. Advanced Applied Music: Voice. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3254. Advanced Applied Music: Flute. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3255. Advanced Applied Music: Clarinet. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3256. Advanced Applied Music: Saxophone. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3257. Advanced Applied Music: Oboe. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3258. Advanced Applied Music: Bassoon. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3259. Advanced Applied Music: Percussion. (2)**  
Prerequisite: MUSC 2400 and permission of instructor.  
Corequisites: MUSC 3300 and an approved principal ensemble. *May be repeated for credit.*

**MUPF 3400. Junior Recital. (0)** A Junior-level recital of solo and ensemble repertoire performed before a jury of faculty members and the general public. See the *Department of Music Student Handbook* for details.

**MUPF 3440-3466. Junior Recital Preparation. (1-2 credit hours)** Courses consist of private instruction, a one-hour lesson per week, leading to a formal junior recital of 15-20 minutes in length per credit hour. Students must sign up for the required lab (MUSC 3300) and an approved principal ensemble concurrently (see the *Department of Music Student Handbook* for details). All students must enroll in 2 credits of classical preparation (MUPF 344x or MUPF 345x); students in the Jazz Certificate program may register for 1 additional credit of jazz preparation (MUPF 346x).

**MUPF 3440. Junior Recital Preparation: Euphonium. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3441. Junior Recital Preparation: Trumpet. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3442. Junior Recital Preparation: French Horn. (2)** Prerequisites: Grade of C or above in at least

one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3443. Junior Recital Preparation: Trombone. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3444. Junior Recital Preparation: Tuba. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3445. Junior Recital Preparation: Guitar. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3446. Junior Recital Preparation: Harp. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3447. Junior Recital Preparation: Organ. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3448. Junior Recital Preparation: Piano. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3449. Junior Recital Preparation: Violin. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3450. Junior Recital Preparation: Viola. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3451. Junior Recital Preparation: Cello. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3452. Junior Recital Preparation: Bass. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3453. Junior Recital Preparation: Voice. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3454. Junior Recital Preparation: Flute. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3455. Junior Recital Preparation: Clarinet. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3456. Junior Recital Preparation: Saxophone. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3457. Junior Recital Preparation: Oboe. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3458. Junior Recital Preparation: Bassoon. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3459. Junior Recital Preparation: Percussion. (2)** Prerequisites: Grade of C or above in at least one semester of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 3460. Junior Recital Preparation: Jazz Saxophone. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 3461. Junior Recital Preparation: Jazz Trumpet. (1)** Prerequisites: Grade of C or above in at

least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 3462. Junior Recital Preparation: Jazz Trombone. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 3463. Junior Recital Preparation: Jazz Guitar. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 3464. Junior Recital Preparation: Jazz Piano. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 3465. Junior Recital Preparation: Jazz Bass. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 3466. Junior Recital Preparation: Jazz Percussion. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4400. Senior Recital. (0)** A Senior-level recital of solo and ensemble repertoire performed before a jury of faculty members and the general public. See the *Department of Music Student Handbook* for details.

**MUPF 4440-4466. Senior Recital Preparation. (1-3 credit hours)** *Courses consist of private instruction, a one-hour lesson per week, leading to a formal senior recital of 15-20 minutes in length per credit hour. Students must sign up for the required lab (MUSC 3300) and an approved principal ensemble concurrently (see the Department of Music Student Handbook for details). All Music Education majors must enroll in 2 credits of classical preparation (MUPF 444x or MUPF 445x); Music Education majors in the Jazz Certificate program may register for 1 additional credit of jazz preparation (MUPF 446x). Music Performance majors in the Jazz Certificate program may register for 2 credits of classical preparation (MUPF 444x or MUPF 445x) and 1 credit of jazz preparation (MUPF 446x); all other Music Performance majors must register for 3 credits of classical preparation (MUPF 444x or MUPF 445x).*

**MUPF 4440. Senior Recital Preparation: Euphonium. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4441. Senior Recital Preparation: Trumpet. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4442. Senior Recital Preparation: French Horn. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4443. Senior Recital Preparation: Trombone. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: 1300 and an approved principal ensemble.

**MUPF 4444. Senior Recital Preparation: Tuba. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4445. Senior Recital Preparation: Guitar. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4446. Senior Recital Preparation: Harp. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4447. Senior Recital Preparation: Organ. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4448. Senior Recital Preparation: Piano. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4449. Senior Recital Preparation: Violin. (2-3)** Prerequisites: Grade of C or above in at least two

semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4450. Senior Recital Preparation: Viola. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4451. Senior Recital Preparation: Cello. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4452. Senior Recital Preparation: Bass. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4453. Senior Recital Preparation: Voice. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4454. Senior Recital Preparation: Flute. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4455. Senior Recital Preparation: Clarinet. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4456. Senior Recital Preparation: Saxophone. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4457. Senior Recital Preparation: Oboe. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4458. Senior Recital Preparation: Bassoon. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4459. Senior Recital Preparation: Percussion. (2-3)** Prerequisites: Grade of C or above in at least two semesters of 3000-level Applied Music (MUPF 32xx) and permission of department. Corequisites: MUSC 3300 and an approved principal ensemble.

**MUPF 4460. Senior Recital Preparation: Jazz Saxophone. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4461. Senior Recital Preparation: Jazz Trumpet. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4462. Senior Recital Preparation: Jazz Trombone. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4463. Senior Recital Preparation: Jazz Guitar. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4464. Senior Recital Preparation: Jazz Piano. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4465. Senior Recital Preparation: Jazz Bass. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

**MUPF 4466. Senior Recital Preparation: Jazz Percussion. (1)** Prerequisites: Grade of C or above in at least one semester of Applied Music: Jazz (MUPF 22xx) and permission of department. Corequisite: An approved principal ensemble.

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## Music (MUSC)

**MUSC 1000. Introduction to Music Studies. (1)** Prerequisite: acceptance as a music major. An introduction to the habits that ultimately lead to success as a music major, including methods for practicing, performing, and wellness, as well as techniques for research, writing, and academic

integrity. One contact hour.

**MUSC 1100. Rudiments of Music. (2)** An introductory course in music literacy, including clefs, pitches, key signatures, durational values, and rests. May be taken concurrently with MUSC 1101. Three contact hours.

**MUSC 1101. Introduction to Aural Skills and Sight-Singing . (1)** An introduction to Aural Skills and Sight-Singing , including pitch-matching, modal identification, and rhythmic dictation. May be taken concurrently with MUSC 1100 and/or MUSC 1237. Two contact hours.

**MUSC 1102. Fundamentals of Musicianship. (3)** An introductory course in basic musicianship, including music literacy (clefs, pitches, key signatures, durational values, and rests) and aural skills (the identification and dictation of modes, melodies, and rhythms).

**MUSC 1104. The History of Rock Music. (3)** A chronological approach to the evolution of rock music, its varied styles and artists.

**MUSC 1105. The Evolution of Jazz. (3)** A chronological approach to the history of jazz, its main styles and artists.

**MUSC 1220. Introduction to Instruments. (1)** Prerequisite: Acceptance as a music major. An introduction to the band and orchestra instruments most often found in school instrumental music programs for pre-service choral/general music teachers. Students will explore the history, acoustics, sound production and basic techniques of instruments in the brass, woodwind, string and percussion families.

**MUSC 1222. Jazz Ensemble Techniques. (1)** Prerequisite: Music minor/major. The teaching and administration of public school jazz ensembles including rehearsal techniques, and analyzing appropriate literature and teaching materials. Fieldwork may be required.

**MUSC 1223. Woodwind Techniques. (1)** Prerequisite: Acceptance as Music major. Playing and teaching techniques and materials for flute, oboe, clarinet, bassoon, and saxophone.

**MUSC 1225. Brass Techniques. (1)** Prerequisite: Acceptance as Music major. Playing and teaching techniques and materials for trumpet, horn, trombone, euphonium, and tuba.

**MUSC 1227. String Techniques. (1)** Prerequisite: Acceptance as Music major. Playing and teaching techniques and materials for violin, viola, cello, and

bass. Two contact hours.

**MUSC 1229. Percussion Techniques. (1)** Prerequisite: Acceptance as Music major. Playing and teaching techniques and materials for snare drum, timpani, mallet percussion, and accessory instruments.

**MUSC 1230. Structure and Style of Music I. (2)** Prerequisites: Music major or minor; and MUSC 1100 with grade of C or above. Corequisites: MUSC 1230L and MUSC 1233. The study of basic music theory, including the analysis of diatonic harmony, two-part counterpoint, and the fundamentals of part-writing. Three contact hours.

**MUSC 1230L. Aural Skills and Sight-Singing I. (1)** Prerequisite: Music major or minor; and MUSC 1101 with grade of C or above. Corequisites: MUSC 1230 and MUSC 1233. This course is a lab course for MUSC 1230. It contains the practical application of material from MUSC 1230, as well as rhythms through simple and compound meters. Three contact hours.

**MUSC 1231. Structure and Style of Music II. (2)** Prerequisite: MUSC 1230 with grade of C or above. Corequisites: MUSC 1231L and MUSC 1234. The continued study of basic music theory, including harmonic sequences, phrase and period structures, and simple forms. Three contact hours.

**MUSC 1231L. Aural Skills and Sight-Singing II. (1)** Prerequisite: MUSC 1230L with grade of C or above. Corequisites: MUSC 1231 and MUSC 1234. This course is a lab course for MUSC 1231. It contains the practical application of material from MUSC 1231, as well as rhythms through simple and compound meters with varying subdivisions. Three contact hours.

**MUSC 1232. Basic Musicianship Review. (3)** Prerequisite: Permission of instructor. A review of basic music theory, including the analysis of diatonic harmony, two-part counterpoint, and the fundamentals of part-writing, as well as harmonic sequences, phrase and period structures, and simple forms. An aural skills and sight-singing component reviews the practical application of those theoretical materials, as well as rhythms through simple and compound meters with varying subdivisions. Three contact hours.

**MUSC 1233. Class Piano I. (1)** Prerequisites: Music major or minor; and MUSC 1100 with grade of C or above. Corequisites: MUSC 1230 and MUSC 1230L. This course is a lab course for MUSC 1230. Functional keyboard skills and technique in a group setting, including the harmonization, transposition, and improvisation of diatonic melodies, as well as sightreading and repertoire. Three contact hours.

**MUSC 1234. Class Piano II. (1)** Prerequisite: MUSC 1233 with grade of C or above. Corequisites: MUSC 1231 and MUSC 1231L. This course is a lab course for MUSC 1231. The continued study of functional keyboard skills and technique, including the harmonization, transposition, and improvisation of major and minor melodies in a variety of keys, as well as sight-reading and repertoire. Three contact hours.

**MUSC 1236. Movement for Musicians. (1)** Prerequisite: Acceptance as Music major or minor. A laboratory that investigates the intellectual and physical coordination of the musician using a blended approach of various movement/coordinative modalities and developmental approaches. *May be repeated for credit.*

**MUSC 1237. Class Voice. (1)** Prerequisite: Acceptance as Music major or minor. Class instruction in voice. *May be repeated for credit.* Three contact hours.

**MUSC 1238. Guitar Class I. (2)** Prerequisite: Open to non-Music majors only. Class instruction in guitar using contemporary popular music from a text. Three contact hours.

**MUSC 1239. Guitar Class II. (2)** Prerequisite: Open to non-Music majors only. Continuation of MUSC 1238. Class instruction in guitar using contemporary popular music from a text. Three contact hours.

**MUSC 1300. Performance Class. (0)** Corequisite: Applied Music (MUPF 1240-1259). This is a lab course for Applied Music that provides students with the experience of participating in masterclasses and formal recitals. By also serving as audience members and assisting during public concerts, the students cultivate proper audience decorum, contribute to a professional environment for all university performances, and increase their knowledge of the repertoire for a wide variety of instruments. *Graded on a Pass/No Credit basis. May be repeated for credit.*

**MUSC 1401. Music Practicum. (1)** Prerequisite: MUSC 1000. Practical application of work in the areas of equipment management, publicity, box office, house management, and stage management. *May be repeated for credit.*

**MUSC 1402. Opera and Musical Theatre Practicum. (1)** Prerequisite: permission of instructor. Practical application of production work in the areas of: introductory stage rigging, lighting adjustments, supertitling, costume, props, backstage management and backstage crew for final rehearsals and performances of the Opera Workshop ensemble. *May be repeated for credit.*

**MUSC 1403. Audio Engineering Practicum. (1)** Prerequisite: Permission of instructor. Practical application of audio engineering work in the areas of recording, controlling, editing, and distributing sound and audio for dance, music, and theatre. *May be repeated for credit.*

**MUSC 2001. Topics in Music. (1-6)** Prerequisite: permission of instructor. Special topic in music. *May be repeated for credit.*

**MUSC 2101. Introduction to Music Business. (2)** Prerequisite: acceptance as a music major/minor. An overview of various aspects of the music business, including marketing, promotion, communication, conduct, organization, accounting, and administration. Course projects may include the creation of promotional materials and planning a CD/DVD recording project.

**MUSC 2137. Phonetics and Articulation for Singers I. (2)** Prerequisite: acceptance as a Music major/minor. Pronunciation and articulation in vocal music in English and Italian. Three contact hours.

**MUSC 2138. Phonetics and Articulation for Singers II. (2)** Prerequisite: MUSC 2137. Pronunciation and articulation in vocal music in German and French. Three contact hours.

**MUSC 2140. Oboe Reedmaking. (1)** Designing and adjusting American-style oboe reeds, including techniques for cane gouging, shaping, and sharpening the double-hollow-ground knife. *May be repeated for credit.* Two contact hours.

**MUSC 2150. Accompanying for Pianists. (1)** Corequisite: MUPF 1248. Accompanying techniques for pianists. Required accompanying of solos by other student musicians. *May be repeated for credit.* One contact hour.

**MUSC 2151. Introduction to Music Technology. (1)** Prerequisite: Permission of instructor. An introduction to the standard applications of music technology, including general computing processes, digital audio, MIDI, music notation, and computer-aided instruction.

**MUSC 2160. Guitar History and Literature. (2)** A study of the development of the classical guitar repertoire, the styles and techniques of playing and the performance practices and the major composers from the 16<sup>th</sup> century to the present. Three contact hours.

**MUSC 2191. Incorporating Music Into the Elementary Classroom. (3)** Prerequisite: Non-Music major. Students develop basic music skills that allow

them to choose, prepare, and teach appropriate music materials for inclusion in the classroom curricula. Three contact hours. Field work required.

**MUSC 2222. Marching Band Techniques. (2)**  
Prerequisite: Acceptance as Music major or minor. The organization and administration of marching band programs in school settings, the application of teaching techniques for the outdoor program and the practical use of computerized software for designing and teaching of field drills. Three contact hours.

**MUSC 2230. Structure and Style of Music III. (2)**  
Prerequisite: MUSC 1231 with grade of C or above. Corequisites: MUSC 2230L and MUSC 2233. The study of intermediate music theory, including chromatic harmony, modulation, and simple forms. Three contact hours.

**MUSC 2230L. Aural Skills and Sight-Singing III. (1)**  
Prerequisite: MUSC 1231L with grade of C or above. Corequisites: MUSC 2230 and MUSC 2233. This course is a lab course for MUSC 2230. The practical application of material from MUSC 2230, as well as cross-rhythms involving duplets and triplets. Three contact hours.

**MUSC 2231. Structure and Style of Music IV. (2)**  
Prerequisite: MUSC 2230 with grade of C or above. Corequisites: MUSC 2231L and MUSC 2234. The continued study of intermediate music theory, including advanced chromaticism, largescale forms, and an introduction to serialism and basic set theory. Three contact hours.

**MUSC 2231L. Aural Skills and Sight-Singing IV. (1)**  
Prerequisite: MUSC 2230L with grade of C or above. Corequisites: MUSC 2231 and MUSC 2234. This course is a lab course for MUSC 2231. The practical application of material from MUSC 2231, as well mixed meters and advanced cross-rhythms. Three contact hours.

**MUSC 2232. Intermediate Musicianship Review. (3)**  
Prerequisite: Permission of instructor. A review of intermediate music theory, including chromatic harmony, modulation, and simple forms, as well as advanced chromaticism, large-scale forms, serialism, and basic set theory. An aural skills and sight-singing component reviews the practical application of those theoretical materials, as well as mixed meters and advanced cross-rhythms. Three contact hours.

**MUSC 2233. Class Piano III. (1)** Prerequisite: MUSC 1234 with grade of C or above. Corequisites: MUSC 2230 and MUSC 2230L. This course is a lab course for MUSC 2230. The continued study of functional keyboard skills and technique, including chromatic

harmonization, the transposition and improvisation of melodies with simple harmonic accompaniments, sight-reading, repertoire, and accompanying. Three contact hours.

**MUSC 2234. Class Piano IV. (1)** Prerequisite: MUSC 2233 with grade of C or above. Corequisites: MUSC 2231 and MUSC 2231L. This course is a lab course for MUSC 2231. The continued study of functional keyboard skills and technique, including chromatic harmonization, the transposition and improvisation of melodies with four-part accompaniments, score reading, sight-reading, repertoire, and accompanying. Three contact hours.

**MUSC 2235. Jazz Improvisation I. (2)** Prerequisites: MUSC 1231 and/or permission of instructor. An introduction to jazz theory and its execution through instrumental improvisation. Detailed study of harmony, chord/scale relationships, musical forms, and the integration of this knowledge into performance. Open to instrumentalists only. Three contact hours.

**MUSC 2236. Jazz Improvisation II. (2)**  
Prerequisites: MUSC 2235 and permission of instructor. A continuation of MUSC 2235, with greater emphasis on performance and integration of advanced harmonic/melodic devices and concepts, solo transcriptions, basic piano voicings, and composition memorization. Open to instrumentalists only. Three contact hours.

**MUSC 2271. Fundamental Recording Techniques. (1)** Prerequisite: Permission of department. This course will provide music majors with a comprehensive and well-rounded education in fundamental areas of audio recording. One credit hour, once contact hour. Open to all music majors and other majors by permission of instructor.

**MUSC 2400. Sophomore Review. (0)** A Sophomore-level proficiency examination consisting of a transcript evaluation, an applied performance evaluation, and an interview. See the *Department of Music Student Handbook* for details.

**MUSC 3130. Counterpoint. (2)** Prerequisite: MUSC 2400. A detailed study of contrapuntal styles of the 16th and 18th centuries through extensive exploration of melodic, harmonic and rhythmic designs with an emphasis on the composition of motets, inventions, and fugues.

**MUSC 3134. Fundamentals of Conducting. (2)**  
Prerequisite: MUSC 2400. Conducting techniques for instrumental and choral ensembles. Field work required. Three contact hours.

**MUSC 3135. Choral Conducting. (2)** Prerequisites: MUSC 2138 and MUSC 3134. Developing conducting skills for interpreting choral music. Field work required.

**MUSC 3136. Instrumental Conducting. (2)** Prerequisite: MUSC 3134. Developing conducting skills for interpreting instrumental music. Field work required.

**MUSC 3150. Advanced Accompanying for Pianists. (1)** Prerequisite: MUSC 2400. Corequisite: MUPF 3284. Advanced accompanying techniques for pianists. Required accompanying of solos by other student musicians. *May be repeated for credit.* One contact hour.

**MUSC 3151. Accompanying for Non-Pianists. (1)** Prerequisite: MUSC 2400. Accompanying techniques for music teachers and private studio instructors, with an emphasis on techniques appropriate for use in classrooms, rehearsals, and studios. *May be repeated for credit.* One contact hour.

**MUSC 3170. Music History I. (3) (W)** Prerequisite: MUSC 2400. Limited to music majors only. The intensive study of the development of ideas and styles in the western musical tradition from Classical Antiquity through the Baroque Period.

**MUSC 3171. Music History II. (3) (O, W)** Prerequisite: MUSC 3170. The intensive study of the development of ideas and styles in the western musical tradition from the Classical period to the present.

**MUSC 3300. Advanced Performance Class. (0)** Corequisite: Advanced Applied Music (MUPF 3240-3259), Junior Recital Preparation (MUPF 3440-3459), or Senior Recital Preparation (MUPF 4440-4459). This is a lab course for Advanced Applied Music that provides students with multiple experiences of performing in front of an audience. By also serving as audience members and assisting during public concerts, the students continue to cultivate proper audience decorum, contribute to a professional environment for all university performances, and increase their knowledge of the repertoire for a wide variety of instruments. *Graded on a Pass/No Credit basis. May be repeated for credit.*

**MUSC 3410. Music Internship. (1-3)** Prerequisites: MUSC 2400 and permission of department. Provides a meaningful work experience in fields such as music business, music industry, and arts administration. Requires 40-50 hours of supervised employment per credit hour. Proposal forms must be completed and approved prior to registration. *Graded on a Pass/No Credit basis.*

**MUSC 4001. Advanced Topics in Music. (1-6)** Prerequisites: MUSC 2400 and permission of instructor. Special advanced topic in music. *May be repeated for credit.*

**MUSC 4037. Vocal Literature. (3)** Prerequisite: MUSC 4294. A survey of American, British, French, German, and Italian literature for solo voice, including a study of style and interpretation.

**MUSC 4049. Violin Literature. (3)** Prerequisite: MUSC 4294. An analysis course focusing on the major repertoire for the violin. Methodologies will include both historical and structural analysis of violin compositions from the seventeenth century through the present.

**MUSC 4090. Choral Ensemble Techniques. (1)** Prerequisite: MUSC 3134 with grade of C or above. An introduction to the voice and to teaching choral ensembles most often found in school programs for pre-service instrumental/general music teachers. Students explore how to effectively rehearse, manage, and perform with a choral ensemble. Students also explore developmentally appropriate vocal-pedagogy concepts for adolescent through adult-aged singers.

**MUSC 4094. Instrumental Ensemble Techniques. (1)** Prerequisite: MUSC 3134 with grade of C or above. An introduction to the band and orchestra instruments most often found in school instrumental music programs for pre-service choral/general music teachers. Students explore how to effectively rehearse, manage, and perform with an instrumental ensemble. Students also explore the acoustics, sound production, and basic techniques of instruments in the brass, woodwind, string, and percussion families.

**MUSC 4132. Guitar Pedagogy and Literature. (3)** Prerequisite: MUSC 2400. A survey of teaching methods, historical and pedagogical texts, and literature for guitar.

**MUSC 4133. Wind Pedagogy and Literature. (3)** Prerequisite: MUSC 2400. A survey of teaching methods, historical and pedagogical texts, and literature for woodwind and brass instruments.

**MUSC 4134. String Pedagogy and Literature. (3)** Prerequisite: MUSC 2400. A survey of teaching methods, historical and pedagogical texts, and literature for string instruments.

**MUSC 4135. Percussion Pedagogy and Literature. (3)** Prerequisite: MUSC 2400. A survey of teaching methods, historical and pedagogical texts, and literature for percussion instruments.

**MUSC 4136. Keyboard Pedagogy and Literature. (3)** Prerequisite: MUSC 2400. A survey of teaching methods, historical and pedagogical texts, and literature for keyboard instruments.

**MUSC 4137. Vocal Pedagogy. (3)** Prerequisite: MUSC 2400. A methodology course designed to present the physiological and acoustical bases for a coherent approach to the teaching of singing. Areas of vocal technique to be studied include the physiology of the voice, posture, breathing, onset of sound, articulation, vocal registration, and other related areas.

**MUSC 4138. Jazz Pedagogy and Materials. (3)** Prerequisite: MUSC 2400. The teaching and conducting of public school instrumental and vocal jazz ensembles, including rehearsal techniques, concert presentation, the history and theory of jazz, sources for appropriate teaching materials and improvisation techniques. Field work required.

**MUSC 4149. Violin Pedagogy. (3)** Prerequisite: MUSC 2400. Corequisites: MUPF 3249 and MUPF 3249L. A methodology course outlining the teaching techniques, materials, and related literature necessary for offering private instruction on the violin.

**MUSC 4153. Advanced Vocal Pedagogy. (3)** Prerequisite: MUSC 4137. An advanced course studying the practical aspects of teaching voice, including problem-solving techniques, comparison of various teaching methods, psychology of teaching voice, age-specific teaching techniques, use of movement, and vocalize analysis.

**MUSC 4230. Form and Analysis. (3)** Prerequisite: MUSC 2400. The impact of form and process on the analysis and interpretation of music. A detailed examination of common practice forms such as Binary, Ternary, Rondo, Theme and Variation, and Sonata form.

**MUSC 4231. Post-Tonal Processes. (3)** Prerequisite: MUSC 4230. The study of contemporary music through the implementation of a variety of analytical techniques such as modal analysis, set theory, and serial analysis, including an exploration of contemporary styles including Impressionism, Modernism, Neoclassicism, Post-Serialism, Minimalism, and Neo-Romanticism.

**MUSC 4234. Jazz Arranging and Composition. (3)** Prerequisites: MUSC 2235 and MUSC 2400. The study of arranging and orchestration techniques in the jazz style. Detailed analysis of historically important music scores for jazz combo and jazz ensemble. Instrument ranges, scoring techniques, and advanced

harmonic substitutions will be addressed. Combo and large ensemble writing projects will be assigned.

**MUSC 4235. Orchestration and Arranging. (2)** Prerequisite: MUSC 2400. Orchestration and the techniques used to transcribe and arrange music for vocal and instrumental ensembles with a focus on writing and performance. Three contact hours.

**MUSC 4240. Composition. (2)** Prerequisite: MUSC 2400, MUSC 4145, and permission of instructor. An introduction to compositional techniques of melody, harmony, rhythm, form, and instrumentation with an emphasis on writing, listening, and performance. *May be repeated for credit.* One contact hour.

**MUSC 4241. Advanced Composition. (2)** Prerequisite: MUSC 4240. The advanced study of composition, including process, form, pitch and rhythmic organization, and instrumentation. The course consists of advanced private instruction, a one-hour lesson per week, focusing exclusively on the writing and performance of original compositions. *May be repeated for credit.*

**MUSC 4290. Early Music. (3) (W)** Prerequisite: MUSC 2400. An integrated survey of Western music from Classical Antiquity through the Baroque Period, including music history and literature; music theory, counterpoint, and analysis; and improvisation and composition.

**MUSC 4294. Classic and Romantic Music. (3) (W)** Prerequisite: MUSC 4290 with grade of C or above. An integrated survey of western music in the eighteenth and nineteenth centuries, including music history and literature; music theory, counterpoint, and form and analysis; and improvisation and composition.

**MUSC 4296. Contemporary and World Music. (3) (O)** Prerequisite: MUSC 4294 with grade of C or above. A survey of twentieth and twenty-first century western art music, as well as world music from other cultures. Integrates music history and literature, music theory and analysis, and improvisation and composition; and explores the musical languages and achievements of various world cultures.

**MUSC 4298. Jazz History. (3)** Prerequisite: MUSC 2400. The study of significant musicians and literature in the history of jazz. Detailed analyses of influential scores and recordings constitute a significant part of the course. Written projects such as research and listening reaction papers will be assigned.

**MUSC 4800. Senior Project Preparation. (3)** Prerequisites: A grade of C or above in at least three semesters of 3000-level Applied Music (MUPF 32xx)

and permission of department. Course consists of private instruction, a one-hour meeting per week, leading to a formal research paper of approximately 40 pages in length or a comparable project of equivalent rigor.

**MUSC 4900. Senior Project. (0)** The project may consist of written historical, theoretical, or technological research; original compositions recorded and performed; or a lecture supported by written original research and documentation. See the *Department of Music Student Handbook* for details.

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## Neurodiagnostics and Sleep Science (NDSS)

**NDSS 2101. Introduction to Sleep Medicine. (3)** An introduction to sleep science by examining the history of the profession of sleep medicine, basic principles of sleep medicine practice and procedures. The current structure, limitations, political climate and future considerations for the profession are also discussed.

**NDSS 3101. Pathophysiology of Sleep, Neurological, and Related Disorders. (3)** Prerequisite: NDSS major. Explores the diseases affecting the nervous system, the sleep/wake cycle, and psychiatric and behavioral disorders. Topics include: etiology, clinical manifestations, pharmacology, disease prevention, and overview of treatments.

**NDSS 3102. Neurological and Sleep Diagnostic and Therapeutic Methods, and Monitoring Services. (3)** Prerequisite: NDSS major. Explores the services available at sleep and neurophysiology laboratories and interpretation of diagnostic findings. Topics include: sleep procedures, and electroencephalography/long-term epilepsy monitoring. Students participate in laboratory practice sessions.

**NDSS 3104. Advanced Sleep and Neurodiagnostic Clinical Procedures. (3)** Prerequisites: NDSS major; NDSS 3101 and NDSS 3102 with grades of C or above. Explores advanced clinical procedures performed in sleep centers and neurophysiology laboratories. Topics include: patient assessment, suggested immobilization test, ambulatory EEG, actigraphy, portable monitoring, dental sleep medicine, nocturnal ventilator support, and current issues and trends. Laboratory sessions provide practical experience in advanced clinical procedures in neurodiagnostics and sleep science.

**NDSS 3405. Neurodiagnostics and Sleep Science Practicum. (3)** Prerequisites: NDSS major; NDSS 3104 with grade of C or above. Sleep disorders center

and clinical neurophysiology laboratory clinical experience.

**NDSS 4101. Principles and Practice of Healthcare Education. (3)** Prerequisites: NDSS major; NDSS 3101 with grade of C or above. Provides a foundation in the principles and practice of healthcare education. Topics include: the educational process, learner characteristics, and teaching and learning theories, techniques and strategies.

**NDSS 4104. Advanced Physiological Monitoring and Data Acquisition. (3)** Prerequisites: NDSS major; NDSS 3104 with grade of C or above. Explores the advanced clinical procedures performed in clinical neurophysiology laboratories and operating rooms. Topics include: nerve conduction velocity testing, autonomic testing, electronystagmography, visual, brainstem, auditory and somatosensory evoked potentials intraoperative neurophysiologic monitoring and maintenance. Laboratory sessions provide practical experience in neurophysiologic monitoring techniques.

**NDSS 4105. Leadership in Healthcare Organizations. (3)** Prerequisites: NDSS major; RESP 4102 and NDSS 4101 with grades of C or above. Focuses on the theories and practices of leadership in healthcare. Global, social, legal, political, economic, and ethical issues are explored.

**NDSS 4406. Neurodiagnostics and Sleep Science Internship. (3)** Prerequisites: NDSS major; NDSS 4101 and RESP 4102 with grades of C or above. Sleep and clinical neurophysiology laboratory educational/management internship with mentoring component.

**NDSS 4107. Neurodiagnostics and Sleep Science Capstone. (6) (W)** Prerequisites: NDSS major; NDSS 3405, NDSS 4104, and NURN 4201 with grades of C or above. Students complete a project and presentation culminating from the undergraduate course of study. Project topics provide students the opportunity to summarize, evaluate, and integrate knowledge gained throughout the undergraduate major.

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## Nursing: RN-to-BSN (NURN)

**NURN 3103. Concepts of Professional Nursing Science. (3)** Prerequisite: Admission to the RN-BSN Program or permission of instructor. Introduces professional nursing with emphasis on theoretical, ethical, and legal models guiding practice.

**NURN 3104. Issues in Cultural Health. (1)** Prerequisite: Admission to the RN-BSN Program or

permission of instructor. Exploration of concepts and models of cultural health. Analysis of current issues related to culture and healthcare and the impact on provision of nursing care.

**NURN 3108. Health Assessment for Nurses. (3)**  
Prerequisites: Admission to the RN-BSN Program or permission of instructor. Evaluation of human function using interview and physical examination data within a framework for clinical decision making. Competencies necessary for holistic health assessment across the lifespan.

**NURN 3108L. Health Assessment Lab. (0)**  
Prerequisite: Admission to the RN-BSN Program. Evaluation of human function using interview and physical examination data within a framework for clinical decision making. Competencies necessary for holistic health assessment across the lifespan.

**NURN 4100. Aging and Health. (3) (0)**  
Prerequisites: Admission to the RN-BSN Program or permission of instructor; NURN 3103; NURN 3104; and NURN 3108. Examination of physiological process of aging as a normal life experience. Study of psychological, nutritional, and general health issues designed to facilitate high-level wellness.

**NURN 4201. Information Technology: Applications in Healthcare. (2)** Prerequisite: Upper-division standing or permission of instructor. A study of the use of computers and information technology in healthcare. Emphasis is placed on development of the knowledge and competencies necessary for selective use of evaluation of informatics, computer technology and data management in healthcare.

**NURN 4203. Leadership in Nursing Practice. (2)**  
Prerequisite: Admission to the RN-BSN Program or permission of instructor; NURN 4100; NURN 4201; and NURN 4440. Exploration of societal and professional trends and issues affecting nursing and healthcare. Leadership strategies within the profession and practice of nursing. Analysis of care that supports effective utilization of the healthcare delivery system. Health system mediation and health system management is explored from a nursing intervention perspective.

**NURN 4440. Community Health Nursing. (6)**  
Prerequisites: Admission to the RN-BSN Program, NURN 3103, NURN 3104, and NURN 3108. Development of competencies for the nursing care management of culturally diverse individuals, families, and populations within communities with emphasis on the nurse's role in health promotion and maintenance. Particular focus on risk identification and reduction throughout the life span.

**NURN 4450. Design and Coordination of Care. (6) (W)** Prerequisites: Admission to the RN-BSN Program, NURN 4100, NURN 4201, and NURN 4440. Application of theory-based practice in a variety of settings with clients who have multiple healthcare needs. Emphases are on clinical judgment and decision-making, diagnostic reasoning, clinical ethics, collaboration and case management. Examination of nursing therapeutics within the structure of nursing process and nursing diagnosis.

**NURN 4900. Research in Nursing Practice. (2)**  
Prerequisites: Admission to the RN-BSN Program or permission of instructor; NURN 4100; NURN 4201; and NURN 4440. Exploration of the theoretical foundations of nursing with emphasis on research, theories, concepts and processes leading to their application in practice.

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## Nursing (NURS)

**NURS 2100. General Nutrition. (2)** Prerequisite: CHEM 1204 or 1252. A solid knowledge base of general nutrition viewed from a life cycle perspective. Exploration of behavioral aspects and scientific concepts related to nutrition. Open to Pre-nursing majors, sophomore standing.

**NURS 2200. Human Growth and Development. (3)**  
Pre- or corequisites: Pre-Nursing major, Sophomore standing; and BIOL 2273 and BIOL 2273L, or KNES 2168 and KNES 2168L. Study of the developing person through the lifespan by examining the relationship of selected environmental and social factors to human growth and development. Consideration of the meaning of health and illness to the individual, the family, and the community within the context of life as a continuing, dynamic process from conception through death.

**NURS 2201. Communication in Caring Relationships. (2)** Prerequisites: Pre-Nursing major; Sophomore standing; ANTH 1101 or SOCY 1101, PSYC 1101, UWRT 1101, and UWRT 1102. Introduction to essential communication competencies within the context of helping relationships. Emphasis is on communication processes, cultural competence, and skills in a therapeutic relationship.

**NURS 3102. Introduction to Nursing Science. (3)**  
Prerequisite: Admission to the Nursing major. An introduction to the theoretical and scientific basis of nursing practice, including an overview of the profession and examination of major concepts, theories, and models.

**NURS 3105. Concepts of Professional Nursing. (3)**

Prerequisite: Admission to the Nursing major. Corequisite: NURS 3108. Concepts and standards fundamental to professional nursing practice. Explores the unique role of nursing in the healthcare system.

**NURS 3107. Pathophysiology: Clinical Concepts of Illness and Disease. (3)** Prerequisite: Admission to the Nursing major. Conceptual basis of alterations in physiological processes that disrupt or impair health and the body's response to illness and disease. Building on knowledge obtained in previous courses in the biological and social sciences, this course provides a foundation for building critical thinking skills in the differentiation of disease and illness.

**NURS 3108. Health Assessment and Application. (3)** Prerequisite: Admission to the Nursing major. Pre- or corequisites: NURS 3105 and NURS 3107. Evaluation of human function using interview and physical examination data within a framework for clinical decision making. Competencies necessary for holistic health assessment across the lifespan.

**NURS 3205. Pharmacology in Health and Illness. (3)** Prerequisites: Admission to the Nursing major and NURS 3107 or permission of instructor. Presentation of the theoretical base for the safe and therapeutic use of drugs. Examination of Pharmacologic agents commonly used in health and illness and the standards and societal controls of drugs are explored.

**NURS 3230. Illness and Disease Management. (3)** Prerequisite: Admission to the Nursing major. Corequisite: NURS 3430. Focus on health promotion strategies and nursing interventions appropriate for planning care of adult clients with basic pathophysiological alterations.

**NURS 3250. Nursing Care of the Childbearing Family. (2)** Prerequisites: Junior 1 Nursing Courses. Corequisite: NURS 3440. Foundations of nursing care of families during the childbearing year. Emphasis on the nurse's role in health assessment, health promotion and promotion of adaptive processes of the individual and family during pregnancy, birth, transition to parenthood, and the newborn period, including alterations in health status.

**NURS 3260. Nursing Care of Children. (2)** Prerequisites: Junior 1 Nursing Courses. Corequisite: NURS 3440. Foundations of nursing care of children and families during the childrearing years. Emphasis on the nurse's role in health assessment, health promotion and promotion of adaptive processes of the child and family during childhood from infancy to adolescence, including alterations in health status.

**NURS 3425. Practicum in Concepts of Professional Nursing. (2)** Prerequisite: Admission to the Nursing Major. Corequisites: NURS 3105 and NURS 3108. This clinical course introduces the application of concepts, skills and values fundamental to professional nursing practice.

**NURS 3430. Practicum Illness and Disease Management. (3)** Prerequisites: Admission to the Nursing Major and NURS 3108. Pre- or corequisite: NURS 3230. Clinical practice in healthcare settings that correlates with theoretical content related to basic pathophysiological alterations. Students will provide care in diverse clinical settings to develop psychomotor skills and apply knowledge in making clinical decisions.

**NURS 3440. Practicum in Nursing Care of Children and the Childbearing Family. (3)** Prerequisites: Admission to the Nursing Major and NURS 3108. Development of competencies essential for the nursing care of families during the childbearing and childrearing years. A variety of clinical experiences are provided, including community-based care, patient education, and in-patient care, with an emphasis on family-centered nursing practice.

**NURS 3895. Independent Study in Nursing. (1-4)** Prerequisite: permission of instructor. Directed individual study in a selected aspect of nursing which is explored in greater depth than included in the planned curriculum. *May be repeated for credit with change of focus.* No more than six hours in NURS 3895 and/or 4090 may be counted toward degree requirements.

**NURS 4000. Topics in Nursing. (1-3)** Prerequisite: permission of instructor. Critical examination of selected current topics in nursing.

**NURS 4090. International Comparative Health Systems. (3)** Cross-listed as HLTH 4090. A study tour to explore the cultural, social, and healthcare systems outside the United States. Participants visit a variety of healthcare sites and attend presentations by practitioners and educators. They will have opportunities to interact with people from the host countries and visit a variety of cultural and historic sites. *May be repeated for credit with change of topic.*

**NURS 4100. Nursing Care of the Aging Adult. (3)** Prerequisite: Senior Standing in the Nursing Program. Examination of the processes of aging. Study of the nursing care for healthy, aging adults; frail, aging adults; institutionalized, aging adults; and dying, aging adults.

**NURS 4120. Psychiatric Mental Health Nursing. (3)** Prerequisites: Admission to the Nursing Major and

NURS 3430 and NURS 3440. Corequisite: NURS 4420. The foundation of Psychiatric Mental Health Nursing with emphasis on biopsychosocial content in the understanding and care of acute and chronic and chemically dependent clients.

**NURS 4130. Complex Illness and Disease Management. (3)** Prerequisites: Admission to the Nursing Major and NURS 3230. Corequisite: NURS 4430. Illness and disease management of adult patients with complex pathophysiological alterations. Focus is on care management of clients with complex and pathophysiological health needs.

**NURS 4191. Women's Health Issues. (3)** Cross-listed as WGST 4191. Prerequisite: WGST 1101 or permission of instructor. Exploration of contemporary issues in women's health from the feminist and women's health movement perspectives.

**NURS 4192. Enhancing Clinical Judgment. (3)** Prerequisites: Admission to the RN-BSN Completion option or instructor's permission. Enhances student's ability to make sound nursing clinical judgments. Students have the opportunity to (a) reflect on their own style of thinking, (b) examine the role of critical thinking in making clinical judgments, (c) learn strategies for enhancing critical thinking and clinical reasoning, (d) practice applying the strategies in a variety of case studies, (e) critically study their own clinical practice, and (f) benefit from learning via on-line group discussion with peers.

**NURS 4193. Professional Communication: Clinical Decision Making and Ethical Reasoning. (3)** Prerequisite: Admission to the major. Provides students with skills needed to interact with clients, families, and other health professionals. A variety of communication strategies that facilitate more effective functioning as a professional are explored. Experiential activities and online seminars are designed to enhance awareness of personal and professional values in relation to ethical questions in practice. Students are challenged to synthesize communication strategies based on principles from nursing, psychology, communications and other disciplines.

**NURS 4194. Building Community Response to Domestic Violence. (3)** Open to non-nursing majors. Emphasizes an understanding of professional helping roles in the prevention and intervention of domestic violence. The course emphasizes the importance of a "community" response to domestic violence that includes the role of law enforcement, healthcare, men's treatment, and women's shelter and advocacy programs.

**NURS 4203. Leadership and Informatics for Nursing Practice. (3)** Prerequisite: Admission to the Nursing Major. Corequisite: NURS 4450. Introduction to leadership focusing on healthcare systems and the nurse's role. Explore external and internal forces that affect the work environment and how to influence those forces. Discuss the work environment that best motivates people and creates an atmosphere that inspires, instills confidence and sustains individuals. Incorporate understanding of self to enhance beginning leadership.

**NURS 4240. Population Focused Nursing. (3)** Prerequisite: Admission to the Nursing Major. Corequisite: NURS 4440. Examination and analysis of concepts and theories related to care of populations from a perspective of social justice. Focuses on health indicators and risk reduction in diverse groups across the lifespan and development of community partnerships within healthcare systems.

**NURS 4420. Practicum in Psychiatric Mental Health Nursing. (3)** Prerequisite: Admission to the Nursing Major. Corequisite: NURS 4120. Development of competencies necessary for the practice of psychiatric mental health nursing. Emphasis is on the use of self in relationships, psychiatric nursing assessment, nursing interventions with clients and working as a member of the healthcare team. A variety of clinical settings are used.

**NURS 4430. Practicum in Complex Illness and Disease Management. (3) (0)** Prerequisites: Admission to the Nursing Major, NURS 3230, and NURS 3430. Corequisite: NURS 4130. Clinical practice in healthcare settings that correlate with theoretical content related to complex pathophysiological alterations. Students provide care in diverse clinical settings to continue to develop psychomotor skills and apply knowledge for clinical decision-making and reasoning.

**NURS 4440. Practicum in Population Focused Nursing. (2)** Prerequisite: Admission to the Nursing Major. Corequisite: NURS 4240. Development of competencies related to care of diverse populations. Precepted experiences occur in a variety of communities and agencies that provide opportunities for interdisciplinary experiences.

**NURS 4450. Design and Coordination of Care. (3) (W)** Prerequisites: Admission to the Nursing Major and NURS 4430. Corequisite: NURS 4203. Clinical application of knowledge and skills in the design, management, and coordination of care for clients in a variety of healthcare settings. Precepted clinical experience with written clinical decision making projects.

**NURS 4600. Professional Nursing: Trends, Issues, and Licensure. (3)** Corequisites: NURS 4203 and NURS 4900. Current trends and issues that impact a variety of aspects of the nursing profession. Analysis of professional nursing practice in relation to current trends and issues. Required components for professional licensure in nursing, including preparation for the NCLEX-RN exam. Strategies for role transition from nursing student to professional nurse.

**NURS 4900. Research in Nursing Practice. (2)** Prerequisite: Admission to the Nursing Major. Exploration of research methodologies relative to nursing practice, with emphasis on research utilization and evidence-based practice.

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## Operations Management (OPER)

**OPER 3000. Topics in Operations Management. (3)** Prerequisite: OPER 3100 with grade of C or above. Topics from the areas of Operations Management. The course *May be repeated for credit*.

**OPER 3100. Operations Management. (3)** Prerequisites: ACCT 2121, 2122; ECON 2101, 2102; INFO 2130; MATH 1120; and STAT 1220 with grades of C or above; Junior standing. Introduction to and development of the management functions in manufacturing and non-manufacturing organizations. A systems approach to the organizational environment, the basic operating functions, the problems and decisions a manager encounters and solution techniques and models. Computer application are included where appropriate.

**OPER 3201. Operations Planning and Control. (3)** Prerequisite: OPER 3100 with grade of C or above. An in-depth study of production planning and control activities in an enterprise resource planning context. Topics covered include: forecasting, operations and capacity planning, master production scheduling, material requirements planning, production activity control, inventory management, and Just-in-Time inventory systems. The use of software to manage operations and the interactions between operations and other functional areas of a business will be emphasized.

**OPER 3203. Decision Modeling and Analysis. (3)** Prerequisite: OPER 3100 with grade of C or above. Analytical approach to understanding the management process and solving management problems with emphasis on model formulation, solution techniques, and interpretation of results. Specific topics covered in this course include: techniques such as linear, integer, goal and multi objective programming; queuing theory and applications; decision support via Monte Carlo

simulation; decision making under uncertainty and risk; decision trees; and multi-criteria decision making. Excel is the main analytical tool..

**OPER 3204. Management of Service and Project Operations. (3)** Prerequisite: OPER 3100 with grade of C or above. Examines both strategic and operational decision making in service management with emphasis on the latter. Topics include: service strategy, designing new services, assessing and improving service quality, improving the efficiency and effectiveness of service processes, service process design and service facility location, managing waiting lines, managing service projects, and the integration of technology into service operations.

**OPER 3206. Quality Assurance and Management. (3)** Prerequisite: OPER 3100 with grade of C or above. A study of management philosophy, practices and analytical processes implemented in quality planning and administration of products and services. Topics include: corporate culture, quality design, human factors and motivation, quality cost analyses and auditing, service quality, quality assurance, quality circles, and conformance to design.

**OPER 3208. Supply Chain Management. (3)** Prerequisite: OPER 3100 with grade of C or above. Supply chain management is concerned with all of the activities performed from the initial raw materials to the ultimate consumption of the finished product. From a broad perspective, the course is designed to examine the major aspects of the supply chain: the product flows; the information flows; and the relationships among supply chain participants. The course content is interdisciplinary in nature and will cover a variety of topics such as supply chain information technologies, supply chain design, strategic alliances between supply chain participants and supply chain initiatives.

**OPER 3400. Operations and Supply Chain Management Internship. (1-6)** Prerequisites: Junior or Senior in good standing and department approval. Full- or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Requires 50 hours of supervised employment per hour of credit. Each student's internship program must be approved by the supervising faculty. A proposal form must be completed and approved prior to registration and the commencement of the work experience. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading will be by the supervising faculty and could be in consultation with off-campus supervisor at the internship organization. *Graded on a Pass/No Credit basis.* A student who is

employed with applying for this Management Information Systems internship may not earn internship credit through work for the current employer. May be used to meet requirements of a major elective, up to a maximum of six credit hours.

**OPER 3401. Operations and Supply Chain Management Internship. (1-6)** Prerequisite: Junior or Senior in good standing and department approval. Full- or part-time academic year internship in areas complementary to the concentration area of studies and designed to allow theoretical and course-based practical learning to be applied in a supervised industrial experience. Requires 50 hours of supervised employment per hour of credit. Each student's internship program must be approved by the supervising faculty. A proposal form must be completed and approved prior to registration and the commencement of the work experience. A mid-term report and a final report to be evaluated by the supervising faculty are required. Grading will be by the supervising faculty and could be in consultation with off-campus supervisor at the internship organization. *Graded as a letter grade.* A student who is employed with applying for this Management Information Systems internship may not earn internship credit through work for the current employer. May be used to meet requirements of a major elective, up to a maximum of six credit hours.

**OPER 3500. Operations and Supply Chain Management Cooperative Education and 49ership Experience. (0)** Prerequisite: Operations and Supply Chain Management major. Enrollment in this course is required for the department's cooperative education and 49ership/service 49ership students during each semester they are working in a position. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**OPER 3800. Directed Study. (1-6)** Prerequisites: Permission of department and Junior standing. Enrollment granted only by permission of the faculty with whom the work will be performed. The student's work assignments will be designed by the student and faculty member who will oversee the project of study. The credit hours will be determined prior to enrollment and will be based on the particular project undertaken.

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## Operations Research (OPRS)

**OPRS 3111. Operations Research: Deterministic Models. (3)** Prerequisites: MATH 1242 and MATH 2164. Linear, integer and dynamic programming, the simplex method, networks, PERT and CPM techniques, game theory, and applications.

**OPRS 3113. Operations Research: Probabilistic Models. (3)** Prerequisite: MATH 1242; MATH 2164; and MATH 3122, STAT 2122, or STAT 3122; or permission of department. Queuing models, inventory models, simulation, markov chains, decision analysis, game theory and probabilistic dynamic programming.

**OPRS 4010. Topics in Decision Mathematics. (2-3)** Prerequisite: Permission of department. Topics in decision mathematics selected to supplement regular course offerings in this area of mathematics. *May be repeated for credit with permission of department.* Credit for the M.A. degree in Mathematics requires approval of the department.

**OPRS 4113. Game Theory. (3)** Prerequisites: OPRS 3111; and MATH 3122, OPRS 3113, STAT 2122, or STAT 3122. The theory of zero-sum matrix games, mini-max theorem, optimal strategies, symmetric games, economic models, infinite, separable, polynomial, multi-stage, general-sum and in-person games. A project is required of all graduate students.

**OPRS 4114. Dynamic Programming. (3)** Prerequisites: ITCS 1214; OPRS 3111; and MATH 3122, OPRS 3113, STAT 2122, or STAT 3122. The identification of dynamic programming problems and their solution in terms of recurrence relations. Elementary path problems, resource allocation, shortest path, traveling salesmen problem, discrete-time optimal control, replacement models, and inventory systems. A project is required of all graduate students.

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## Philosophy (PHIL)

**PHIL 1105. Critical Thinking. (3) (W)** Fundamental skills of clear thinking that help students reason better during communication, problem-solving, and design, particularly as these integrate scientific/engineering efforts with social needs and values. Focuses on clarifying goals, identifying constraints, and generating and evaluating ideas or solutions. Students are ineligible to take this course if credit has already been received for PHIL 1106.

**PHIL 1106. Critical Thinking. (3)** Fundamental skills of clear thinking that help students reason better

during communication, problem-solving, and design, particularly as these integrate scientific/engineering efforts with social needs and values. Focuses on clarifying goals, identifying constraints, and generating and evaluating ideas or solutions. Students are ineligible to take this course if credit has already been received for PHIL 1105.

**PHIL 2101. Introduction to Philosophy. (3)** Same content as PHIL 2102, but does not fulfill the General Education writing goal. Students can receive credit for either PHIL 2101 or PHIL 2102, but not both. Exploration of some of the basic problems that have shaped the history of philosophy (truth, knowledge, justice, beauty, etc.) and remain relevant to students today on personal and professional levels. Readings will range from classical to contemporary texts by a variety of philosophers representing diverse perspectives on these problems. Please see the descriptions in Banner attached to each section to appreciate the different ways this course is taught every semester.

**PHIL 2102. Introduction to Philosophy - Writing Intensive. (3) (W)** Same content as PHIL 2101, but fulfills the General Education writing goal. Students can receive credit for either PHIL 2101 or PHIL 2102, but not both. Exploration of some of the basic problems that have shaped the history of philosophy (truth, knowledge, justice, beauty, etc.) and remain relevant to students today on personal and professional levels. Readings will range from classical to contemporary texts by a variety of philosophers representing diverse perspectives on these problems. Please see the descriptions in Banner attached to each section to appreciate the different ways this course will be taught every semester. Makes substantial use of writing as a tool for learning.

**PHIL 2105. Deductive Logic. (3)** Principles of deductive logic, both classical and symbolic, with emphasis on the use of formal logic in analysis of ordinary language discourse.

*Note: Prerequisites for upper-level courses. While PHIL 2101 or PHIL 2102 are not prerequisites for courses at the 3000-level and above, students who have taken PHIL 2101 or PHIL 2102 typically benefit more from upper level philosophy courses than students who have not.*

**PHIL 3010. Ancient Philosophy. (3)** Western intellectual and philosophic thought from the early Greeks to the post Aristotelian period, often with an eye to issues in contemporary philosophy. Readings from the pre Socratics, Plato, Aristotle, Epicureans, Stoics, Skeptics, and Neoplatonists.

**PHIL 3020. Modern Philosophy. (3)** Modern philosophic and scientific thought from Descartes to Kant. Readings selected from representative works in the 17th and 18th centuries.

**PHIL 3030 Twentieth-Century Philosophy. (3)** Examination of some central problems, issues, and methodologies of Twentieth-Century Philosophy. Examination may include: pragmatism, phenomenology, logical analysis, existentialism, ordinary language philosophy, critical theory, hermeneutics, structuralism, or post-structuralism.

**PHIL 3110. Medieval Philosophy. (3)** Western philosophical tradition from Augustine to William of Ockham. Readings include such other authors as Anselm of Canterbury, Bonaventure, Thomas Aquinas, and Duns Scotus.

**PHIL 3120. Nineteenth-Century Philosophy. (3)** Examination of some central problems, issues, and methodologies of Nineteenth-Century Philosophy, including from some more contemporary perspectives, such as feminism. Examination may include: German Idealism (e.g., Fichte, Schelling, Hegel, Schopenhauer), Early Existentialism (e.g., Kierkegaard, Nietzsche), Early Phenomenology (e.g., Balzano, Brentano), Social Philosophy (e.g., Comte, Feuerbach, Bentham, Mill, Marx), and American Philosophy (e.g., Peirce, James, Washington, DuBois).

**PHIL 3130. American Philosophy. (3)** Analyzes the question of what constitutes American Philosophy, examining the interaction between America and philosophy and exploring some of the characteristics that may help contribute to the characterization of American Philosophy including: individualism, community, practicality, fallibility, and meliorism. Critically examines the narrative of American philosophy, focusing on pragmatism, America's distinctive contribution to philosophy, and assesses the role that American philosophy has, can, and should play concerning social and cultural issues in America.

**PHIL 3140. Existentialism. (3)** Existentialist tradition in philosophy and literature including such issues as: authenticity, absurdity and the meaning of life, freedom and morality, anguish, death, and atheism.

**PHIL 3170. Major Figure in Philosophy. (3)** An investigation into the thoughts and writings of a major figure in philosophy with special emphasis on primary sources. Included may be Plato, Aristotle, Descartes, Kant, Marx, Nietzsche, Heidegger, Quine, Davidson, Rawls, and others as indicated by departmental needs and interests. *May be repeated for credit.*

**PHIL 3190. Topics in History/Genealogy. (3)**

Specific topics in the history/genealogy of philosophy. *May be repeated for credit with permission of department.*

**PHIL 3210. Ethical Theory. (3)** Selective examination of major normative and metaethical theories that undergird our practical judgments about morally right actions and virtuous persons. Normative theories studied may include virtue ethics, deontology, consequentialism, and representative feminist theories. Metaethical theories studied may include cognitivism, expressivism, realism, and error theory.

**PHIL 3220. Aesthetics. (3)** Discussion and analysis of major theories of art ranging from historical figures (Plato, Aristotle, Hume, Kant, Nietzsche, and Dewey) to contemporary philosophers (Sontag, Danto, Kristeva, and Ranciere). Emphasis will be on the development of aesthetics in relation to the visual and performing arts, new media, and philosophy, but also in response to social-political-cultural issues, such as feminism, racism, and the like.

**PHIL 3230. Healthcare Ethics. (3)** Major ethical dilemmas within medical science and biology are examined to assist students to identify, analyze, and decide ethical issues in such a way that they can defend their positions to themselves and others. Issues include reproductive and genetic technology, death and dying, patient rights, and justice in distribution of healthcare benefits and burdens.

**PHIL 3239. Ethics Bowl Prep. (3) (O, W)** Prerequisite: UWRT 1102 or UWRT 1103. Preparation for participation on the University's Ethics Bowl Team. Training in ethical theory and argumentation. Oral and written practice, both individually and collaboratively, presenting sample case studies.

**PHIL 3240. Ethics Bowl. (3) (O, W)** Prerequisite: PHIL 3239. Students prepare for and participate in the Mid-Atlantic Regional Ethics Bowl competition. Students intensively research cases (developed by the Intercollegiate Ethics Bowl), and work both collaboratively and individually on written case analyses. Significant amounts of in-class time scrimmaging and working on public-speaking and oral communication skills.

**PHIL 3246. Ethics Bowl II. (1)** Pre- or corequisite: PHIL 3240. Students who have previously competed in the Mid-Atlantic Regional Ethics Bowl prepare for and participate in the Mid-Atlantic Regional Ethics Bowl competition and/or the National Intercollegiate Ethics Bowl. *May be repeated for credit.*

**PHIL 3310. IT Ethics. (3)** Looks at ethical issues that

emerge in the context of new technologies. We will combine a study of traditional moral theories with a look at how those theories might help us understand some of the many challenges presented by contemporary technologies. Topic areas may include privacy/surveillance, intellectual property (things like cell patents, peer-to-peer file sharing, etc.), and genetically modified foods.

**PHIL 3320. Engineering Ethics. (3)** Familiarizes students with the ethical and social dimensions of professional engineering practice. The course is built around discussions of: (1) some of the classical philosophical theories (Utilitarianism, Respect for Persons, etc.), (2) concepts and techniques for breaking down complicated scenarios (factual, conceptual, etc.), (3) typical problem areas such as professional integrity and responsibility, risk analysis, and the conflict between engineers and managers, (4) case studies and special focus on classic cases (Columbia and Challenger disasters, etc.), and (5) various ethical codes of the engineering profession (electrical, mechanical, petroleum, etc.). Emphasis on the enhancement of skills in critical thinking and effective communication in professional engineering.

**PHIL 3330. Philosophy and Literature. (3)** Discussion and analysis of the classic and contemporary philosophical themes in literature, the literary dimensions of philosophy (e.g., Platonic dialogues and the modern essay), the role of philosophy in the development of literary theory, the effects of changes in literature on philosophy (e.g., new narrative structures in both fields), and the like. Readings will range from the classical (e.g., Plato, Montaigne, Kierkegaard, and Nietzsche) to the contemporary (e.g., Adorno, Derrida, Eco, and Nussbaum).

**PHIL 3340. Business Ethics. (3)** Ethical problems confronting business as a social institution and individuals in business. Application of ethical theory to business institutions and practices, internal exchanges of business (e.g., hiring, promotions, working conditions, employer/employee rights and duties) and external exchanges (e.g., product safety, environment, depletion, marketing, advertising.) Emphasis is on the role of critical thinking about and in business.

**PHIL 3380. Internship in Applied Ethics. (3)** Prerequisite: Declared philosophy major or minor; at least Junior standing; selection by department. Field experience includes on-site visits to host companies, corporations, or agencies to investigate ethics codes, policies, culture, and practices. Background ethics research on ethics challenges facing the host organization today. Final reports evaluated by faculty advisor and shared with the host organization.

**PHIL 3390. Topics and Ethics/Aesthetics. (3)** Specific topics in Ethics/Aesthetics. *May be repeated for credit with permission of department.*

**PHIL 3410. Knowledge and Reality. (3)** An examination of interrelated issues concerning belief, justification, knowledge, and existence and the implications of these for broader philosophical issues. "Narrower" issues may include: What is the source of our beliefs? How do these sources affect our determinations of what fundamentally exists and what those things are like? How do our assumptions about what exists affect the objects and methods of knowing? When do beliefs become knowledge? Are there some things about the world that we cannot know about? Broader issues may include: What kind of thing is a mind or a self? How does such a thing fit into a natural world? What can non-human animals or computers tell us about intelligence? In what sense can collective entities engage in intentional behavior?

**PHIL 3420. Philosophy of Language. (3)** An inquiry into the nature of language and its use in actual practice. Discussion will focus on theories of meaning and their relations to the fields of logic and linguistics, and will address special topics such as linguistic creativity and linguistic violence.

**PHIL 3430. Mind, Cognition, and Behavior. (3)** An exploration of epistemological, metaphysical, and ethical questions concerning the mind. The main focus is on the possibility of integrating classic philosophical perspectives with contemporary research in cognitive science. Topics include: the descriptive/normative relation, the connection between philosophy and science, the plausibility of the mind and/or brain as a computational, symbol-manipulating system, including cases in which ethical consequences emerge from this orientation, and other topics such as consciousness, free will and determinism, logic and language, emotion and reasoning, and rationality.

**PHIL 3510. Advanced Logic. (3)** Advanced systems of logic, with emphasis upon symbolic logic and formal systematic characteristics such as axiomatics and proof techniques.

**PHIL 3520. Philosophy of Science. (3)** Questions concerning scientific knowledge and methods and their relation to technology, metaphysics, history/sociology, and interdisciplinary connections. "Science" is construed broadly to imply a connection with all systematic inquiry, either past or present, into natural or social questions. Particular topics may include the nature of theories, models, observations, predictions, and the conditions of progress.

**PHIL 3530. Philosophy of Religion. (3)** Cross-listed as RELS 3242. Philosophical implications of religious experience including the definitions, development, and diverse forms of the problems of belief and reason in modern thought.

**PHIL 3590. Topics and Knowledge/Language. (3)** Specific topics in the Knowledge/Language. *May be repeated for credit with permission of department.*

**PHIL 3600. Practicum in Philosophy. (1-3)** Prerequisite: Permission of department. Directed individual study involving the student and instructor in rethinking and reworking some major problems in the teaching of undergraduate philosophy, including interaction with a particular course, usually PHIL 1105, 2101/2102, or 2105, in the preparation, presentation, and evaluation of the course. (Not for teacher licensure.)

**PHIL 3605. Research Methods and Publication. (3)** Permission of instructor required. Individual instruction in current methods of research in philosophy through participation in major research project. No more than six hours may apply towards the major in Philosophy.

**PHIL 3610. Independent Study. (1-3)** Prerequisite: Permission of department. Directed individual study of a philosophical issue, problem, or figure(s) of special interest to the student. For approval procedures, students should see the undergraduate coordinator. *May be repeated for credit with change of topic and permission of department.* No more than six hours may apply toward the Philosophy major.

**PHIL 3620. Senior Seminar. (3) (O, W)** This capstone course provides an opportunity to develop or secure a philosophical literacy for those who will end their studies of philosophy with a B.A. and for those who are interested in pursuing a graduate degree in philosophy or a related field. The course will thus help advanced students integrate their studies in philosophy, pursue their individual philosophical interests in more depth, and study philosophical texts or issues that they have not yet had a chance to cover but that are important to a well-rounded education in philosophy. The focus in the seminar will be on contemporary philosophy, though a research project may involve more historical figures or issues.

**PHIL 3791. Honors Thesis. (3)** Prerequisite: Permission of department and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results.

**PHIL 3810. Social and Political Philosophy. (3)**

Cross-listed as POLS 3177. Examination of basic concepts involved in understanding the nature and structure of political and social formations. Issues may include topics such as justice, human rights, the nature of political power, and the relations between individuals and political/social institutions. Readings from historical and/or contemporary sources, and may include figures such as Plato, Hobbes, Marx, Rawls, Arendt, Foucault and Butler.

**PHIL 3820. Feminist Philosophy. (3)** Cross-listed as WGST 3820. Overview of feminist critiques of the philosophical canon, contemporary feminist work on philosophical topics (e.g., feminist epistemology, feminist aesthetics, etc.), and philosophical work on topics such as gender, sexuality, and intersectionality. Critical race, postcolonial, and global feminisms will also be studied.

**PHIL 3830. Philosophy and Race. (3)** Cross-listed as AFRS 3830. Examines the role of the concept of race in the Western philosophical canon, and uses current philosophical texts and methods to examine Western discourses of race and racism. Issues such as whiteness, double consciousness, the black/white binary, Latino identity and race, ethnicity, mixed-race identity, and the intersection of race with gender and class are also examined.

**PHIL 3910. Philosophy of War and Peace. (3)** Cross-listed as LBST 2101-H01. The conceptual and historical aspects of violence, terrorism, war, non-violence, justice, and the economic motivations and results, both intended and unintended, associated with these phenomena.

**PHIL 3920. Philosophy of Technology. (3)** Examination of basic concepts and controversies in philosophical discussions of technology. Issues may include relations between technology and nature (and/or human nature), technological determinism, the prospects for intelligent and/or democratic control of particular technologies, and normative issues such as technological systems of social control.

**PHIL 3930. Philosophy of Body. (3)** Opportunity to explore the implications of the Eastern and Western philosophical literature on what the body means to individuals and societies. Philosophical readings about the body's relationship to the mind, politics, happiness, social interaction, and education will be explored through lecture, discussion, and writing.

**PHIL 3940. Philosophy of Education. (3)** Exploration of classic Western approaches to education and the contemporary moral problems faced by America's schools. Issues to be considered are the effect of race, class, and gender on school culture and teacher

preparation.

**PHIL 3990. Topics and Identity/Society. (3)** Specific topics in Identity/Society. *May be repeated for credit with permission of department.*

**PHIL 4190. Advanced Topics in History/Genealogy. (3)** Advanced topics in the history/genealogy of philosophy. *May be repeated for credit with permission of department.*

**PHIL 4390. Advanced Topics in Ethics/Aesthetics. (3)** Advanced study of specific topics in ethics/aesthetics. *May be repeated for credit with permission of department.*

**PHIL 4590. Advanced Topics in Knowledge/Language. (3)** Advanced study of specific topics in the philosophy of knowledge/language. *May be repeated for credit with permission of department.*

**PHIL 4990. Advanced Topics in Identity/Society. (3)** Advanced study of specific topics in the philosophy of identity/society. *May be repeated for credit with permission of department.*

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## Physics (PHYS)

**PHYS 1000. New Student Seminar. (1)** Prerequisite: Student must be a declared Physics major. An introduction to the different disciplines within physics, professional opportunities available to physics majors in industry and academia, research interests of the department, and opportunities for student research in the department. This course is required for all Physics majors. Students present both a paper and a talk about physics to their peers and complete a plan of study for their undergraduate degree.

**PHYS 1100. Conceptual Physics. (3)** A discovery-oriented course which covers a broad spectrum of general physics at a conceptual level, making it a suitable science elective for liberal arts students. Topics include: states of matter, kinematics and dynamics of motion, force, energy and momentum, electricity and magnetism, waves, sound, and light.

**PHYS 1100L. Conceptual Physics Laboratory. (1)** Pre- or corequisite: PHYS 1100. Laboratory investigations illustrating experimental techniques and fundamental principles of natural phenomena. Three laboratory hours each week.

**PHYS 1101. Introductory Physics I. (3)** First semester of a two semester algebra-based introductory sequence in physics. Introduction to the fundamental principles of natural phenomena. Topics include: kinematics and dynamics of particles, momentum,

work, energy, conservation laws, and mechanics of rigid bodies. Knowledge of basic algebra and trigonometry is needed. Three lecture hours each week.

**PHYS 1101L. Introductory Physics I Laboratory. (1)**

Pre- or corequisite: PHYS 1101. Laboratory investigations illustrating experimental techniques and fundamental principles of natural phenomena. Three laboratory hours each week. *If a student has completed PHYS 2101L with grade of C or above in a previous semester, the student is exempted from taking PHYS 1101L.*

**PHYS 1102. Introductory Physics II. (3)**

Prerequisite: PHYS 1101 with grade of C or above. Second semester of the algebra-based introductory sequence in physics. An introduction to topics in electromagnetism, optics, and nuclear physics. A knowledge of basic algebra and trigonometry is needed for this course. Three lecture hours each week.

**PHYS 1102L. Introductory Physics II Laboratory. (1)**

Prerequisite: PHYS 1101L or PHYS 2101L. Pre- or corequisite: PHYS 1102. A continuation of PHYS 1101L. Three laboratory hours each week. *If a student has completed PHYS 2102L with grade of C or above in a previous semester, the student is exempted from taking PHYS 1102L.*

**PHYS 1130. Introduction to Astronomy. (3)**

Introduction to space science, including the historical beginnings of astronomy; motions of celestial bodies; the solar system; optical and radio astronomy; structure and evolution of stars; galaxies; and cosmology. Three lecture hours each week.

**PHYS 1130L. Introduction to Astronomy Laboratory. (1)**

Pre- or corequisite: PHYS 1130. Experimental investigations relating to the acquisition of and interpretation of astronomical data. One three-hour laboratory each week.

**PHYS 1201. Sports and Physics. (3)**

Fundamental physics concepts are introduced and discussed using only sports-related applications, primarily golf, baseball/softball, and auto racing. Specific physics concepts include forces, Newton's Laws, conservation of energy, conservation of linear momentum, conservation of angular momentum, Bernoulli's principle for fluid flow, centripetal force, vibrations and sound, and heat transfer. In addition, an understanding of materials characteristics are important to the discussions.

**PHYS 1201L. Sports and Physics Laboratory (1)**

Corequisite: PHYS 1201. Experimental investigations illustrating the physical principals related to sports

activities. Laboratories include analysis of the physics involved in activities such as basketball, baseball, golf, tennis, soccer, hockey, and football.

**PHYS 1202. Introduction to Physics in Medicine. (3)**

An introductory level course that covers the basics physics principles behind technologies currently used in medicine. Examines topics in surgical instrumentation and medical imaging (e.g., the use of lasers in medicine, MRI, ultrasound, CT scanning, and nuclear medicine.) Three lecture hours each week.

**PHYS 1203. Physics of Music. (3)**

Fundamental physics concepts are introduced related to the production and interpretation of sound in musical instruments and the human voice. Specific concepts include forces, kinematics, energy, pressure, simple harmonic motion, fluids, traveling and standing waves, and acoustics. Relationship of physical principles to notes, scales, melody, harmony, rhythm, loudness, pitch, timbre, musical instruments, room acoustics, and recording.

**PHYS 1203L. Physics of Music Laboratory. (1)**

Corequisite: PHYS 1203. Laboratory component covering topics introduced in PHYS 1203. Laboratories include the design and construction of wind and string instruments and percussion.

**PHYS 2101. Physics for Science and Engineering I. (3)**

Prerequisite: MATH 1241 with grade of C or above. First semester of a two-semester calculus-based introductory sequence in general physics. Topics include: kinematics and dynamics of particles, momentum, work, energy, conservation laws, simple harmonic motion, and mechanics of rigid bodies. Three lecture hours each week.

**PHYS 2101L. Physics for Science and Engineering I Laboratory. (1)**

Pre- or corequisite: PHYS 2101. Experiments selected from motion on an inclined plane, circular motion, momentum and energy in collisions, torques, and conservation laws. Use of the computer for organizing, graphing and analyzing data. Two laboratory hours each week. If a student has completed PHYS 1101L with grade of C or above in a previous semester, the student is exempted from taking PHYS 2101L.

**PHYS 2102. Physics for Science and Engineering II. (3)**

Prerequisites: PHYS 2101 and MATH 1242 with grades of C or above. Second semester of the calculus-based introductory sequence in general physics. Topics include: electric charge, electric fields, and magnetic fields. Three lecture hours each week.

**PHYS 2102L. Physics for Science and Engineering II Laboratory. (1)**

Prerequisite: PHYS 2101L (or

1101L). Pre- or corequisite: PHYS 2102. A continuation of PHYS 2101L. Experiments selected from series and parallel circuits, RC circuits, EMF and terminal potential difference, electromagnets, and magnetic induction. Two laboratory hours each week. If a student has completed PHYS 1102L with grade of C or above in a previous semester, the student is exempted from taking PHYS 2102L.

**PHYS 3000. Topics in Physics. (1-4)** Prerequisite: Permission of department. Special topics which are introductory in nature. May not be applied toward the degree requirements for "additional hours at the 3000/4000 level" without approval of the departmental Undergraduate Studies Committee. *May be repeated for credit.*

**PHYS 3101. Topics and Methods of General Physics. (3)** Prerequisites: PHYS 2102 and MATH 1242 both with grades of C or above. Covers additional topics in physics at an introductory level. Subjects will include gravitation, angular momentum, wave motion, geometrical and physical optics, electromagnetic waves, fluid dynamics, and thermodynamics. An emphasis is placed on developing additional background and problem solving skills necessary for students to succeed in upper division physics courses.

**PHYS 3121. Classical Mechanics I. (3)** Prerequisites: PHYS 3101 or ECGR 2112; and MATH 2171; both with grades of C or above. Pre- or corequisite: MATH 2241. Topics include: Newtonian mechanics, kinetic energy, work and potential energy, harmonic oscillators, projectiles and charged particles without and with viscous friction, linear and angular momentum, vector algebra and coordinate transformations, Taylor expansions, mathematical analysis using complex numbers, Fourier series analysis of vibrational motions.

**PHYS 3141. Introduction to Modern Physics. (3)** Prerequisite: PHYS 2102 or PHYS 1102; and MATH 1241; both with grades of C or above. Pre- or corequisite: MATH 1242. Topics include: Special relativity, quantization of charge, light, and energy, the nuclear atom, wavelike properties of particles, introduction to nuclear reactions and applications, introduction to solid state physics, and introduction to particle physics.

**PHYS 3151. Thermal Physics. (3)** Prerequisites: PHYS 3141 and PHYS 3101 with grades of C or above, CHEM 1251 and 1251L, MATH 2241. An introduction to heat, thermodynamics, kinetic theory, and statistical physics. Topics include: classical thermodynamics, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distributions. Three lecture hours a week.

**PHYS 3160. Astrophysics I (Stellar Astrophysics). (3)** Prerequisites: PHYS 3141 and MATH 2171 or permission of instructor. An introduction to stellar structure and evolution. Topics covered include observational techniques, the interaction of light and matter, spectral classification, stellar structure and energy transport, nuclear energy sources, evolution off the main sequence, variable stars, and stellar remnants.

**PHYS 3161. Astrophysics II (Interstellar Matter and Galaxies). (3)** Prerequisites: PHYS 3141 and MATH 2171 or permission of instructor. An introduction to the structure and contents of galaxies. Topics covered include the interstellar medium, star formation, galactic kinematics, galactic structure and evolution, active galaxies, and cosmology.

**PHYS 3210. Introduction to Computational Physics. (3)** Prerequisites: PHYS 2102 and MATH 2171 with grades of C or above. Building on elementary concepts in physics, an introduction to how computers are used to solve physics problems is given. Skills in programming will be developed in the context of applying computational methods to calculate a variety of physical properties found in mechanics and electrodynamics. Techniques for simulating and visualizing the behavior of systems ranging in complexity starting from a single particle, to a few, to many particles are introduced. Also covered are methods for data analysis, including fitting and plotting results graphically that best highlight physical relationships between variables.

**PHYS 3220. Mathematical Methods in Physics. (3)** Prerequisites: PHYS 2102, PHYS 3101, and MATH 2241 with grades of C or above. Optional pre- or corequisite: MEGR 3121 (for PHYS/MEGR dual majors in place of PHYS 3101 prerequisite). Topics include: distribution functions, solutions to ordinary and partial differential equations, boundary value problems, Fourier analysis, vectors and matrices, vector calculus, and complex variables.

**PHYS 3282. Advanced Laboratory in Modern Physics. (3) (O, W)** Prerequisites: PHYS 3141 with grade of C or above. Selected laboratory work in areas such as atomic spectra, radioactive decay, and the interaction of radiation with matter. Emphasis on development of sound laboratory techniques, methods of data analysis, oral communication of results, and the writing of formal laboratory reports. Three hours of laboratory each week.

**PHYS 3283. Advanced Laboratory in Classical Physics. (3) (W)** Prerequisites: PHYS 2102 and 2102L with grades of C or above. Selected laboratory work in areas such as mechanics, electricity and

magnetism, acoustics and thermal physics. Topics are chosen for their relation to important principles and techniques, or for their historical significance. Emphasis on development of sound laboratory techniques, methods of data analysis, and the writing of formal laboratory reports. Three hours of laboratory each week.

**PHYS 3400. Internship in Community Education and Service. (3)** Prerequisites: Junior standing, acceptance into the internship program and approval by the Physics department. A project oriented, service-learning internship with cooperating community organizations. Does not count as credit toward departmental requirements in physics. *May be repeated for credit one time with permission of department. Graded on a Pass/No Credit basis.*

**PHYS 3590. Physics Cooperative Education and 49ership Experience. (0)** Prerequisites: Completion of 30 credit hours at UNC Charlotte (transfer students must complete 12 credit hours), a minimum GPA of 2.0 for 49ership/service 49ership or 2.5 for co-op students, good standing with the University and permission of department. Registration in PHYS 3590 is required of co-op and 49ership students during each of the semesters they are working. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a course registration fee for transcript notation (49ership and co-op). Assignments must be arranged and approved in advance. The Cooperative Education Program is only open to undergraduate students; graduate level students are encouraged to contact their academic departments to inquire about academic or industrial internship options for credit. For more information, contact the University Career Center. *Course may be repeated. Graded on a Satisfactory/Unsatisfactory basis.*

**PHYS 3900. Undergraduate Research. (1-3)** Prerequisites: PHYS 3282; PHYS 3283; permission of Departmental Undergraduate Research Coordinator; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Independent research experience under the supervision of faculty member. *May be repeated for credit one time with permission of department.* Up to three credit hours of PHYS 3900 may be applied toward the physics degree requirement of "additional PHYS hours at the 3000/4000 level" with approval of the Departmental Undergraduate Research Coordinator.

**PHYS 4000. Selected Topics in Physics. (1-4)** Prerequisite: Permission of department. Advanced special topics. May not be applied toward the degree

requirements for "additional hours at the 3000/4000 level" without approval of the departmental Undergraduate Studies Committee. *May be repeated for credit.*

**PHYS 4110. Introduction to Biomedical Optics. (3)** Prerequisites: PHYS 3141 and MATH 2171 both with grades of C or above. Pre- or corequisite: PHYS 3121 or MEGR 2144. The basic principles underlying tissue optics, laser-tissue interactions, and optical imaging, microscopy, and spectroscopy for medical applications.

**PHYS 4140. Nuclear Physics. (3)** Prerequisites: PHYS 3141 and MATH 2171 with grades of C or above. Pre- or corequisite: PHYS 3121 or MEGR 2144. A study of the nucleus, radioactivity, nuclear reactions, fission, fusion, interactions of radiation with matter and measurement of radiation.

**PHYS 4181. Solid State Physics. (3)** Prerequisite: PHYS 3141 or permission of department. An introduction to solid-state physics. Topics include: crystal structures, reciprocal lattices, phonons, free electron Fermi gases, band structures, and electrical, magnetic, and optical properties of metals, semiconductors, and insulators. Three lecture hours each week.

**PHYS 4222. Classical Mechanics II. (3)** Prerequisites: PHYS 3121 and MATH 2241. Continuation of PHYS 3121. Topics include: Lagrangian mechanics, two-body central force problems, coupled oscillators and normal modes, Hamiltonian mechanics, non-inertial frames, rigid body motion.

**PHYS 4231. Electromagnetic Theory I. (3)** Prerequisites: PHYS 3121 or MEGR 2144; PHYS 3220 or MATH 2242; and MATH 2171 with grades of C or above. The first course of a two-semester sequence. Topics include: vector analysis, electrostatics and electric fields in matter. Three lecture hours each week.

**PHYS 4232. Electromagnetic Theory II. (3)** Prerequisites: PHYS 4231 with grade of C or above. A continuation of PHYS 4231. Topics include: magnetostatics, electrodynamics, electromagnetic waves, potentials and fields. Three lecture hours each week.

**PHYS 4241. Quantum Mechanics I. (3)** Prerequisites: PHYS 3220 or MATH 2241; PHYS 3121 or MEGR 2144; PHYS 3141, and MATH 2171 with grades of C or above. Topics include: blackbody radiation, solutions of the time-independent Schrodinger equation, unbound and bound states, the

infinite square well, the harmonic oscillator, the hydrogen atom, spin operators, and the Stern-Gerlach experiment.

**PHYS 4242. Quantum Mechanics II. (3)** Prerequisite: PHYS 4241 with grade of C or above. A continuation of PHYS 4241. Topics include: perturbation theory, atoms in external electric and magnetic fields, the Stark and Zeeman effects, the WKB approximation, selection rules for electromagnetic radiation, scattering theory, multi-electron atoms, and electrons in solids, Bose-Einstein and Fermi-Dirac distributions.

**PHYS 4271. Waves and Optics. (3)** Prerequisite: MATH 2171 with grade of C or above. Pre- or corequisite: PHYS 3121 or MEGR 2144. Topics include: ray analysis of common optical elements, wave properties of light, the superposition of periodic and non-periodic waves, and selected topics from geometrical and physical optics.

**PHYS 4281. Advanced Laboratory in Modern Optics. (3) (W)** Prerequisites: PHYS 3141 and PHYS 3121 (or MEGR 2144) with grades of C or above. Selected experiments on topics such as fiber optics, interferometry, spectroscopy, polarization, and holography. Emphasis on the development of sound laboratory techniques, methods of data analysis, and the writing of formal laboratory reports. Six hours of laboratory each week.

**PHYS 4800. Investigations. (1-2)** Prerequisite: Junior standing. An independent investigation on a topic approved by the department Undergraduate Studies Committee. *May be repeated for credit up to 4 credits.* No more than two credit hours may be applied toward the degree requirements for "additional hours at the 3000/4000 level."

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## Political Science (POLS)

**POLS 1110. American Politics. (3)** Introduction to the role of the President, Congress, Supreme Court, and national administrative agencies in the American political system. Relationship between the American people and their political institutions with emphasis on political culture, the electoral process, political parties, interest groups, and political communication.

**POLS 1130. Comparative Politics. (3)** Introduction to political comparison among nations. Diverse geographical emphases, including Latin America, Europe, Asia, and Africa.

**POLS 1150. International Politics. (3)** Introduction to the analysis of politics among nations: Material and psychological sources of national power; the role of

law, force, and diplomacy in world politics; problems of peace and disarmament; and international organization.

**POLS 1170. Introduction to Political Philosophy. (3)** Survey course that includes an introduction to recognized major political thinkers such as Plato, Aristotle, Hobbes, Locke, Rousseau, and Marx. Included are other politically influential writers such as Confucius, Mary Wollstonecraft, and Martin Luther King.

**POLS 2120. Introduction to Public Policy. (3)** Provides an overview of the policy process in the U.S. focusing on how public problems arise, how they get on the agenda of government, how and why the government responds or fails to respond, defining public policy, explaining how it is made, and who makes it.

**POLS 2220. Political Science Methods. (4) (W)** Prerequisites: Political Science major; at least one introductory POLS course and MATH 1100 or equivalent. This course builds the knowledge skills ability (KSA) of students, in other words increases their information literacy. Emphasis on how to do literature searches, write professional papers as political scientists, understand and calculate statistics, and manipulate data with computer statistical packages. Recommended to be taken before majors begin to take upper level courses. Three hours of lecture and one hour of computer laboratory per week.

**POLS 3010. Topics in American Politics or Public Administration. (1-4)** An intensive study of a topic in American politics or public administration. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number.

**POLS 3030. Topics in Comparative or International Politics. (1-4)** An intensive study of a topic in comparative or international politics. The particular topic investigated may vary from semester to semester, and a student may take more than one course under this number.

**POLS 3070. Topics in Political or Legal Philosophy. (3)** Analysis of a selected problem in contemporary political philosophy, legal philosophy, or in the history of political philosophy. Includes moral and ethical evaluation of political and social practices and institutions. Readings from classic texts or contemporary works. Topic for consideration changes from semester to semester. *May be repeated for credit with permission of instructor.*

**POLS 3103. Public Opinion. (3)** A study of attitude and opinion measurement with emphasis on the techniques of survey research and public opinion polling and conservative and liberal tendencies in American public opinion and society.

**POLS 3104. Mass Media. (3)** An examination of the relationship of mass media to politics and government. Government regulation of the media and how the mass media shape political information and behavior.

**POLS 3105. Voting and Elections. (3)** Psychological, sociological, and political variables that influence voting behavior and that affect electoral stability and change with emphasis on studies derived from survey research.

**POLS 3108. Social Movements and Interest Groups. (3)** Analysis of the nature of social movements and interest groups and their role in the American political system. Emphasis on membership recruitment and mobilization, campaigns, lobbying, and influence on parties, public opinion, and public policy. Evaluation of the extent to which these organizations enhance the voices of ordinary citizens versus those of corporations and citizens of high social status.

**POLS 3109. Political Parties. (3)** Analysis of the role of political parties in the American political system. Emphasis on party organizations, nominations, campaigns, interrelation with interest groups and social movements, and the role of parties in the executive, legislative, and judicial arenas.

**POLS 3111. The Congress. (3)** Analysis of the role of the Congress in the American political system and its relationships with the other branches of government. Recruitment and socialization of congressmen, the committee system, and roll call analysis.

**POLS 3112. The Presidency. (3)** Analysis of the role of the Presidency in the American political system and its relationships with the other branches of government. Strategies of presidential nomination and election, the sources and indicators of presidential power, and how those who have held the office have shaped it and been shaped by it.

**POLS 3114. Constitutional Law and Policy. (3)** Development of American constitutionalism (especially federalism and the separation of powers) with major emphasis on constitutional law as a form of public policy and the U.S. Supreme Court as a policy maker.

**POLS 3115. Civil Rights and Liberties. (3)** Utilizes public policy analysis to illuminate judicial decisions and opinions relating to contemporary civil rights and liberties.

**POLS 3116. Judicial Process. (3)** Introduction to the nature and functions of law; survey of Supreme Court decision making.

**POLS 3117. Gender and the Law. (3)** Examines the role gender plays in various aspects of the legal system in the United States. Topics include: the statutory and constitutional provisions that govern discrimination based on gender (e.g., Title VII, the 14th Amendment Equal protection clause) and the role that gender plays in judicial decision making (e.g., the influence of judge, attorney, party, and juror gender on legal outcomes).

**POLS 3119. State and Local Government. (3)** An introduction to state and local governments, politics, and policies in the United States. Particular attention is paid to state and local government in North Carolina.

**POLS 3121. Urban Politics and Policy. (3)** Political analysis of a variety of public policy problems in urban areas and proposals to solve them. Attention will be paid to both the substance of the urban policy problem and ways to evaluate alternative solutions.

**POLS 3123. Urban Political Geography. (3)** Cross-listed as GEOG 3110. Spatial organization of metropolitan America. How metropolitan residents organize space into territorial units and the human, social, and political ramifications of that organization. Spatial consequences of the most common modes of political, administrative, and territorial organization.

**POLS 3124. U.S. Domestic Policy. (3)** Examination of the processes of and influences on policy making, including goals and objectives of current U.S. domestic policy. Focus on major policy areas; may include such topics as fiscal and monetary policy, education, transportation, management of national economy, and agriculture, among others.

**POLS 3125. Healthcare Policy. (3)** An overview of the development and current functioning of U. S. healthcare system and public policies regarding the organization, delivery and financing of healthcare at the federal, state, and local levels.

**POLS 3126. Introduction to Public Administration. (3)** The role of the administrator and public bureaucracy in modern democratic society, with emphasis on the interplay of forces created by executives, legislators, political parties, and interest groups.

**POLS 3127. Public Service in Nonprofit Organizations. (3)** Basic introduction to the nonprofit sector and the nature and contributions of the nonprofit sector in the United States. Basic management issues in nonprofit organizations.

Highlights the unique contribution and challenges of nonprofits working in different service areas.

**POLS 3128. Politics and Film. (3)** Examination of the influence and role of film in American politics. Movies provide important cues about cultures, values, and society, and affect how people perceive or view their environment. Explores and analyzes the images and messages conveyed about American politics, and develops understanding of the role of film in American politics. Requires viewing films in class, discussion, and writing about the films.

**POLS 3132. Comparative Public Policy. (3)** Examination of the policy process and policy outcomes in the United States and other countries. Analyzes policy areas in depth to determine the role that variations in policy culture and political institutions play in shaping policy choices. Examines the possibility and limitations of transferring policy innovation from one polity to another.

**POLS 3133. Middle East Politics (3)** Political development of Middle Eastern states from the period of European colonization to today. Topics include: Arab nationalism, Islamism, the Palestinian-Israeli conflict, democratization, oil and economic development and regional security.

**POLS 3135. Terrorism. (3)** Addresses four basic questions: (1) What is terrorism? (2) Why does it occur? (3) How does terrorism network? (4) What are the legal, political, and military coping strategies for terrorism? Emphasis on building an understanding of the nature and root causes of terrorism, and understanding the behavioral and psychological framework of terrorism and responses to it.

**POLS 3137. International Human Rights. (3)** Cross-listed as INTL 3137. Introduces students to the historical foundations and current practices of the international human rights regime. Discussions center primarily on three topics: 1) the conceptual and historical origins of the international regime designed to protect human rights, 2) patterns of and explanations for human rights violations over time and space, and 3) potential international and domestic solutions to protect human rights. During the discussion of these topics, students learn about contemporary issues in human rights, as well as how theory applies to current events and individual cases.

**POLS 3139. Civil Wars and Political Violence. (3)** Most large-scale political violence in recent decades takes the form of civil wars fought largely within countries. This course analyzes the conditions under which such conflicts are most likely to occur, their

consequences for civilians, and steps that can be taken to promote their durable resolution.

**POLS 3141. European Politics. (3)** Comparative analysis of selected European governments including Great Britain, France, Germany, and Italy.

**POLS 3143. African Politics. (3)** A comparative perspective on politics in Sub-Saharan Africa and on the performance of post-independence political systems there in terms of national and international integration, economic challenges, and efforts to create stable and democratic civilian regimes.

**POLS 3144. Latin American Politics. (3)** Cross-listed as LTAM 3144. Comparative overview of political and socio-economic change in Latin America from the colonial period to the present. Primary emphasis on Latin American politics in the twentieth century, competing political ideologies, socio-economic issues, international political economy, and internal political change.

**POLS 3148. Chinese Politics. (3)** The origins, development, and maintenance of the Chinese political system. The organization and function of the Chinese Communist Party (CCP) and other political groups. The impact of tradition on contemporary Chinese politics.

**POLS 3151. International Political Economy. (3)** Cross-listed as INTL 3151. An analysis of the political dynamics of economic relationships among countries. Attention is focused on the political aspects of monetary, trade, and investment relationships, and the difficulties involved in coordinating policy and maintaining effective international management.

**POLS 3152. International Organizations. (3)** An analysis of the development and functions of formal and informal organizations that govern international politics and markets, including the United Nations system, economic and non-governmental organizations, and regional institutions.

**POLS 3153. European Union. (3)** An analysis of the European Union (EU) from historical, political, and economic perspectives. Emphasis on the institution's actors (especially states and interest groups) and policies of the EU as well as the changing relationship between the EU and its major trading partners such as the U.S.

**POLS 3154. Cyberspace and Politics. (3)** Examination of the advent of information technologies and digital communication in the global community and the impact of these changes on multi-level politics-international, regional, national, and sub-national. Four major themes are: exploration of the digital world,

cyberspace governance and public policy, electronic government and virtual citizenship, and cyberspace expansion and global reach. Taught mainly as a web-based course.

**POLS 3155. Latin American Political Economy. (3)** Cross-listed as LTAM 3154. Intersections of politics and economics in Latin America, focusing on the efforts to foster economic development in the region. Emphasis on post-World War II era. Includes issues such as debt management, dependency theory, impact of free market theories, and the power of labor movements.

**POLS 3157. American Foreign and Defense Policy. (3)** Examines constitutional provisions for foreign policy in the United States, analyzes the formulation and implementation of American foreign policy, and surveys key defense and security policy issues facing the United States.

**POLS 3159. Diplomacy in a Changing World. (3)** Cross-listed as INTL 3131. Diplomacy, a means to resolve disputes between sovereign states short of war, will be analyzed through case studies drawn from historical context and through a survey of contemporary crises. The American diplomatic process will also be reviewed with particular attention to how policy is shaped, how an embassy functions and how Americans train for the professional diplomatic service.

**POLS 3162. International Law. (3)** Historical and political analysis of the sources and development of international law. Particular attention is given to the role of modern international law in the relations of nation-states and its application to contemporary global problems.

**POLS 3163. Introduction to Model United Nations. (3) (O, W)** Prerequisite: permission of instructor. Preparation for and participation in the Model United Nations (simulation of the United Nations) for students who have not participated in this simulation previously. Includes study of the background of countries to be represented; the history, structure and procedures of the United Nations; drafting of resolutions and position papers; public speaking and caucusing; participation in regional MUN events.

**POLS 3164. U.S.-Latin American Relations. (3)** Cross-listed as LTAM 3164. Addresses the always-complicated and often-conflictive relationship between Latin American and the United States. Particular attention to critical contemporary issues such as the drug trade, immigration, international trade, humanitarian aid and U.S. policy toward Cuba.

**POLS 3165. East Asia in World Affairs. (3)** Examines the political factors governing diplomatic relations, national order, economic trade, and national security in East Asia. Emphasis on China, Taiwan, Hong Kong, Japan, the Korean peninsula, and the Philippines.

**POLS 3166. Politics of the Islamic World. (3)** Political development of and current political trends within countries of North and East Africa, the Middle East, Central Asia, and South and Southeast Asia that make up the Islamic World. Topics include: the diverse body of Islamic political thought, manifestation of Islamic political thought in contemporary countries and movements, a discussion of how Islamic societies handle diversity and the issue of democratic rule, and the political development of the growing Muslim minority community in the West.

**POLS 3169. African International Relations. (3)** Cross-listed as AFRS 4105. Examines Africa's relations with external powers (including Europe, the United States, and China), cooperation among African countries, the role of non-state actors in African conflicts, and U.S. policy toward the continent.

**POLS 3171. History of Classical Political Philosophy. (3)** Major concepts and systems of political philosophy of Ancient Greece and Rome.

**POLS 3172. African American Political Philosophy. (3)** Cross-listed as AFRS 3179. Prerequisite: 3000 level course on Africa from AFRS, HIST, or POLS. Major competing ideologies in African American political philosophy.

**POLS 3173. History of Modern Political Philosophy. (3)** Major concepts and systems of western political philosophy from the 16th-19th centuries.

**POLS 3175. Philosophy of Law. (3)** Philosophy underlying the legal system and the Anglo-American practice of law. Topics include: what is "law;" obligation to obey the law, liberty, privacy and tolerance; and criminal responsibility and punishment.

**POLS 3176. Fascism and Communism. (3)** Considers the philosophies of fascism and communism and those political theorists who contributed to these two twentieth-century movements. Focuses on the implementation of these theories in nations such as Italy, Germany, the Soviet Union, and China.

**POLS 3177. Social and Political Philosophy. (3)** Cross-listed as PHIL 3810. Philosophical concepts involved in understanding and evaluating the basic structure of societies (e.g., economic, educational, legal, motivational, and political) including equality, fraternity, freedom, and rights. Relevance to

contemporary social and political issues stressed. Readings from classical and contemporary sources.

**POLS 3250. Political Sociology. (3)** Cross-listed as SOCY 3250. Prerequisite: SOCY 1101. Sociological analysis of the relationship between social, economic and political systems. Focuses on power relations in society and its effects on the distribution of scarce resources. Topics covered may include: theories of power and the nation state, political participation and voting, religion and politics, the comparative welfare state, media and ideology, the global economy, war and genocide, revolutions, and social movements. Not open to students who have credit for SOCY 3251 or POLS 3251.

**POLS 3251. Political Sociology. (3) (O)** Cross-listed as SOCY 3251. Prerequisite: SOCY 1101. Sociological analysis of the relationship between social, economic and political systems. Focuses on power relations in society and its effects on the distribution of scarce resources. Topics covered may include: theories of power and the nation state, political participation and voting, religion and politics, the comparative welfare state, media and ideology, the global economy, war and genocide, revolutions, and social movements. Not open to students who have credit for SOCY 3250 or POLS 3250.

**POLS 3400. Internship in Political Science. (3-6)** Prerequisite: Permission of department. Practical experience in politics by working for a party, campaign organization, political office holder, news medium, government agency, or other political organization. Minimum of 150 working hours for three hours credit; minimum of 300 working hours for six hours credit. No more than six credits may be received through this course. *Graded on a Pass/No Credit basis.*

**POLS 3800. Independent Study. (1-3)** Prerequisite: Permission of instructor. Supervised investigation of a political problem that is (1) of special interest to the student; (2) within the area of the instructor's special competence; and (3) normally an extension of previous coursework with the instructor. A student may take more than one course under this number but not more than three hours a semester.

**POLS 4110. North Carolina Student Legislature. (3) (O, W)** Prerequisite: permission of instructor. Practicum including workshops, seminars, and guest speakers on legislative process and research, parliamentary procedure, and resolution and bill drafting; participation in an interim council debate at one of the member campuses for one weekend each month during the semester and participation in the NCSL annual session in Raleigh. *May be repeated for credit.*

**POLS 4163. Advanced Model United Nations. (3) (O, W)** Prerequisite: POLS 3163, or the equivalent and permission of instructor. Preparation for and participation in the Model United Nations (simulation of the United Nations) for students who have completed POLS 3163 or the equivalent. Includes study of the background of countries to be represented; the history, structure and procedures of the United Nations; drafting of resolutions and position papers; public speaking and caucusing; participation in international MUN events. *May be repeated for credit.*

**POLS 4600. Senior Seminar. (3) (O, W)** Prerequisites: Political Science major, POLS 1110, POLS 1130, POLS 1150, and POLS 2220. Capstone course. Seminar style exploration of a selected topic in the discipline. Includes writing a research paper and presenting the results to the class.

**POLS 4990. Senior Thesis. (3) (O, W)** Prerequisites: Political Science major; POLS 2220 with a grade of B or above; overall GPA of 3.0 or above; and, when taken for honors credit, approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Students complete an article-length research paper under the supervision of a member of the faculty. The paper must involve quantitative or other methods of modern political analysis.

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## Portuguese (PORT)

**PORT 1201. Elementary Portuguese I. (3)** Fundamentals of the Portuguese language, including speaking, listening comprehension, reading, and writing.

**PORT 1202. Elementary Portuguese II. (3)** Prerequisite: PORT 1201 or permission of department. Fundamentals of the Portuguese language, including speaking, listening comprehension, reading, and writing.

**PORT 2201. Intermediate Portuguese I. (3)** Prerequisite: PORT 1202 or permission of department. Review of grammar, with conversation and composition.

**PORT 2202. Intermediate Portuguese II. (3)** Prerequisite: PORT 2201 or permission of department. Continued review of grammar, conversation, and composition.

**PORT 3050. Topics in Portuguese. (3) (W)** *May be repeated for credit with change of topic.*

**PORT 3051. Topics in Portuguese. (1-3)** *May be*

*repeated for credit with change of topic.*

**PORT 3201. Portuguese Grammar and Conversation. (3)** Prerequisite: PORT 2202 or permission of department. Review of Portuguese grammar and guided conversation on prepared topics. Emphasis on spoken Portuguese.

**PORT 3202. Portuguese Grammar and Conversation. (3)** Prerequisite: PORT 3201 or permission of department. Review of Portuguese grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics.

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## Psychology (PSYC)

**PSYC 1000. The Science and Practice of Psychology. (3)** Open to entering Freshmen accepted into the Psychology Learning Community, it is one of 3-4 courses in a registration block. The sub-disciplines of psychology and their related career paths will be explored. Additional topics include: graduate study in psychology, academic success in psychology, and getting the most from the psychology major and degree. The course has a service learning requirement that includes community service in a social-services setting and associated learning assignments.

**PSYC 1101. General Psychology. (3)** A survey of the field including such topics as learning, emotions, motivation, personality, psychological testing, and abnormal behavior. Emphasis on psychology as a behavioral science. May be taken with or without the lab; however, concurrent enrollment with PSYC 1101L is strongly encouraged. A grade of C or above must be earned within two attempts to declare or continue with a psychology major.

**PSYC 1101L. General Psychology Laboratory. (1)** Pre- or corequisite: PSYC 1101 with grade of C or above. An introduction to laboratory equipment and procedures used in psychological science. Meets two hours per week. May not be counted toward completion of psychology major or minor.

**PSYC 2101. Research Methodology I. (3)** Prerequisites: Psychology major; and PSYC 1101 and STAT 1220, STAT 1221, or STAT 1222 with grades of C or above. Experimental, observational, and correlational methods of psychological research. Basic concepts of philosophy of science are also discussed. A grade of C or above must be earned to continue in the Psychology major.

**PSYC 2103. Research Methodology II. (3) (W)** Prerequisites: Psychology major; and PSYC 1101;

PSYC 2101; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts. Hands-on experience with experimental, observational, and correlational methods of psychological research. Communicating research results using APA Style is a major component of the course. Emphasis on methodology rather than content and applicability of methods to current topics in psychology. A grade of C or above must be earned within two attempts to continue in the Psychology major.

**PSYC 2110. Introduction to Comparative Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Animal and human behavior from a comparative point of view. Includes the study of methodology, and classification of behavior patterns, as well as the origin of these patterns.

**PSYC 2112. Introduction to Behavior Modification. (4)** Prerequisite: PSYC 1101 with grade of C or above. Methods and constructs of behavior modification, including the application of the methods to laboratory research. Three lecture hours and one two-hour laboratory period a week.

**PSYC 2113. Introduction to Brain and Behavior. (3)** Prerequisite: PSYC 1101 with grade of C or above. Physiological psychology, biopsychology, and neuroscience are rapidly expanding fields of scientific research. Reviews basic knowledge about how the brain works and applies this knowledge to basic behaviors. An introductory class that begins to link biology to psychology via examination of the biological underpinning of behavior.

**PSYC 2120. Child Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Psychological development in infancy and childhood, including such topics as biological change, learning, thought, language, social relations, intelligence, and morality.

**PSYC 2121. Adolescent Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Developmental and psychological characteristics of adolescents, with emphasis on the developmental transitions, social contexts, and problems of adolescence.

**PSYC 2124. Psychology of Adult Development and Aging. (3)** Cross-listed as GRNT 2124. Prerequisite: PSYC 1101 with grade of C or above. Psychological development through adulthood and old age. Emphasis on processes underlying continuity and change in adulthood, including personality and socialization, cognitive development, and the psychophysiology of aging.

**PSYC 2126. Introduction to the Psychology of Women and Gender. (3)** Cross-listed as WGST 3226. Prerequisite: PSYC 1101 with grade of C or above. Application of research in developmental, experimental, and clinical psychology to issues regarding women and gender. Topics include: gender-role development, gender differences in cognitive abilities and performance, psychological perspectives on women's physical and mental health, and violence toward women.

**PSYC 2130. Introduction to Social Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. The social behavior of individuals. Topics include: interpersonal attraction and relationship development; attitude change; social conflict; social interaction; social perception; and social influence processes; general theories of social behavior; and research approaches.

**PSYC 2131. Introduction to Forensic Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Overview of the field of forensic psychology, including the history of the discipline, and legal and ethical issues such as criminal profiling, definition of "insanity," eyewitness identification, and jury selection.

**PSYC 2137. Introduction to Positive Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Examines the principal concepts, applications, and research paradigms of positive psychology in reference to various contexts such as everyday people, cross-cultural perspectives, adjustment to chronic illness, surviving natural disasters, terrorist attacks, and civil war.

**PSYC 2150. Psychology of Adjustment. (3)** Prerequisite: PSYC 1101 with grade of C or above. The study of the process of adjustment and factors that may influence adaptation. Consideration is given to psychological reactions to critical problems encountered in modern life. Introduction to different approaches to intervention and treatment.

**PSYC 2151. Abnormal Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field.

**PSYC 2155. Psychological Approaches to Diversity. (3)** Prerequisite: PSYC 1101 with grade of C or above. Examines processes and consequences of stereotyping of different cultures and demographic subgroups (e.g., disabled and racial/ethnic groups) and their social implications.

**PSYC 2160. Introduction to Health Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Introduction to the contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, and the improvement of the healthcare system. Topics include: the role of stress and physiological factors in illness, chronic pain disorders and pain management, lifestyle and psychosocial influences on health, and the influence of illness of interpersonal relationships.

**PSYC 2165. Introduction to Community Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Social forces, particularly within the context of organizations and/or communities, that affect the development of psychopathology and/or personal competency, with emphasis on preventing psychopathology and increasing competency. Topics include: the concept of prevention; assessment of organizations, communities, and other environments; methods of instituting organizational and community change; evaluating the effects of community interventions; social policy analysis; and ethical issues involved in community work.

**PSYC 2171. Introduction to Industrial/Organizational Psychology. (3)** Prerequisite: PSYC 1101 with grade of C or above. Study of people at work; what motivates people to work and what leads to satisfaction, alienation, or performance; how to lead others; the structure of an organization and processes of communication, decision making, and conflict; socialization through selection and training; measurement of individual contributions; the design of work itself; ways to change; and develop entire organizations.

**PSYC 3001. Topics in Psychology. (1-3)** Prerequisites: PSYC 1101 with grade of C or above and permission of instructor (depending on topic). Examination of special psychological topics. *May be repeated for credit with change of topic.*

**PSYC 3002. Topics in Psychological Research. (3) (W)** Prerequisites: PSYC 1101, PSYC 2101, and PSYC 2103 with grades of C or above, or permission of instructor. Examination of special psychological topics. Preparation of one or more APA-style research papers required. *May be repeated for credit with change of topic.*

**PSYC 3111. Psychology of Learning. (3)** Prerequisites: PSYC 1101 and PSYC 2113 with grades of C or above; PSYC 2103 is also strongly recommended. Major theories and empirical findings in the area of learning.

**PSYC 3113. Physiological Psychology. (3)** Prerequisites: PSYC 1101, PSYC 2101, and PSYC 2113 with grades of C or above. The relationship of physiological systems to integrated behavior and an introduction to brain-behavior relationships. Emphasis on neural regulation of behavior.

**PSYC 3114. Motivation. (3)** Prerequisites: PSYC 1101 and PSYC 2101 with grades of C or above. Current theories and research in the area of motivation. Consideration is given to the role of emotion in human motives.

**PSYC 3115. Sensation and Perception. (3)** Prerequisite: PSYC 1101 and PSYC 2113 with grades of C or above, or permission of instructor. Introduction to the sensory and perceptual processes that provide the means to experience and make sense of the physical world in which we live. Topics include: discussions of how sensory data are acquired, processed, and interpreted.

**PSYC 3116. Human Cognitive Processes. (3)** Prerequisites: PSYC 1101 and PSYC 2113 with grades of C or above, or permission of instructor. Processes involved in such complex human behaviors as language (acquisition and usage), memory, and problem solving, with emphasis upon experimental findings and current theories.

**PSYC 3117. Hereditary Behavior. (3)** Prerequisites: PSYC 1101 and PSYC 2113 with grades of C or above. Genetic and environmental contributions to behavior and psychological processes. History of the nature/nurture issue in psychology; animal and human research methods; statistical analysis of behavior-genetic data; and the heritability of learning ability, intelligence, personality, and psychopathology.

**PSYC 3118. Research Methods in Physiological Psychology. (4)** Prerequisites: PSYC 1101, PSYC 2101, PSYC 2103, and PSYC 3113 with grades of C or above, or permission of instructor. Current laboratory techniques in physiological psychology, including basic surgeries, lesioning, stimulation, recording, and histology. Three lecture hours and one two-hour laboratory period a week.

**PSYC 3122. Cognitive and Language Development. (3)** Prerequisites: PSYC 1101; and PSYC 2113 or PSYC 2120; with grades of C or above. Theory and research on the development of thought and language in children, including such topics as theories of cognitive development, the development of perception, representation of knowledge, memory, language, and problem solving.

**PSYC 3123. Social and Personality Development. (3)** Prerequisites: PSYC 1101; and PSYC 2130 or PSYC 3135; with grades of C or above. Social and personality development of children, including such topics as infant social behavior, socialization practices, independence and achievement, aggression, sex-role development, and moral development.

**PSYC 3125. Older Worker and Retirement. (3) (W)** Prerequisite: PSYC 2171 or permission of instructor. Physical characteristics, personal attitudes, and structural factors affecting the employment of persons over 40. Topics include: biological aging, myths and stereotypes about older workers, public policies, human resources practices, economics of retirement, and theories about career and life stages.

**PSYC 3135. Psychology of Personality. (3)** Prerequisites: PSYC 1101 and PSYC 2101 with grades of C or above. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, the perceptual viewpoints in the light of contemporary research.

**PSYC 3136. Sexual Behavior. (3)** Prerequisites: PSYC 1101 and PSYC 2113 with grades of C or above. Explores the psychology of sexual behavior, including providing an overview of the major psychological theories, providing an understanding of the psychological factors that affect human sexual behavior, and examining current issues and controversies related to sexuality such as sexual dysfunction and sexual offenses.

**PSYC 3140. Basic Processes in Psychological Assessment. (3)** Prerequisites: PSYC 1101, PSYC 2101, and PSYC 2103; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above. Psychological testing, including scaling procedures, reliability and validity, correlational techniques used in test construction, a review of various kinds of psychological tests, and basic approaches to test interpretation.

**PSYC 3152. Child Psychopathology. (3)** Prerequisites: PSYC 1101, PSYC 2120, and PSYC 2151 with grades of C or above. Principles of classification, assessment and treatment of children and adolescents who display deviant affective, cognitive, and social behavior.

**PSYC 3153. Introduction to Clinical Psychology. (3)** Prerequisites: PSYC 1101 and PSYC 2151 with grades of C or above. Overview of the field of clinical psychology, including the theory and practice of discipline.

**PSYC 3172. Psychology of Personnel: Employee Selection and Classification. (3)** Prerequisite: PSYC 2171 or permission of instructor. Methods, techniques, and procedures used to select and classify employees.

**PSYC 3173. Psychological Bases of Training Programs. (3)** Prerequisites: PSYC 1101 and PSYC 2171, both with grade of C or above, or permission of instructor. Application of alternative theories about adult learning to the development and conduct of training programs in industry. Topics include: how to develop training needs, a description of methods available to trainers such as programmed instruction and sensitivity training, and how to evaluate the effects of various training techniques.

**PSYC 3174. Organizational Psychology. (3)** Prerequisite: PSYC 2171 with grade of C or above. Application of psychological principles to group and organizational levels of analysis, with emphasis on work teams and business organizations. Topics include: group dynamics, teams and empowerment, organizational culture and diversity, and organization development and change.

**PSYC 3216. Introduction to Cognitive Science. (3)** Cross-listed as ITCS 3216. Prerequisite: PSYC 2113 with grade of C or above or permission of department. Interdisciplinary introduction to the science of the mind. Broad coverage of such topics as philosophy of mind; human memory processes; reasoning and problem solving; artificial intelligence; language processing (human and machine); neural structures and processes; and vision.

**PSYC 3313. Neuropsychology. (3)** Prerequisites: PSYC 1101, PSYC 2101, PSYC 2113, and PSYC 3113 with grades of C or above. Brain function and behavior, especially in individuals believed to be brain damaged (e.g., by stroke, Alzheimer's, or head injury); general principles of brain function and of human neuropsychology, including higher functions (e.g., memory and language); and neuropsychological assessment.

**PSYC 3405. Practicum in Applied Psychology. (1-4)** Prerequisites: Junior standing, permission of instructor and department. Work in practical settings related to psychology under the supervision of a faculty member. *May be repeated for credit with permission of department.* Students must obtain approval in the semester preceding the semester in which the practicum is to be taken. *Graded on a Pass/No Credit basis.*

**PSYC 3407. Service Learning in Psychology. (1-4) (SL)** Prerequisite: Permission of instructor. Work in

practical settings related to psychology. Practicum setting may be local or international. *May be repeated for credit. Graded on a pass/no credit basis.*

**PSYC 3806. Undergraduate Research Assistantship. (1-4)** Prerequisites: Permission of instructor, Psychology major, and a GPA above 2.0. Assist faculty with current research projects. Exact duties will depend of hours enrolled and the needs of the instructor. *May be repeated for credit.* The student must obtain approval from the instructor listed in the schedule of classes in the semester preceding the semester in which the course is to be taken.

**PSYC 3807. Peer Advising. (2)** Prerequisites: Psychology major, at least Junior standing, GPA greater than 2.75, participation is through competitive selection process, requires commitment for both the Fall and Spring terms. Students selected as Peer Advisors will earn 2 hours of PSYC 3807 credit each term in which they serve. The course activities involve weekly group training sessions; four writing projects pertaining to advising theory and practice; advising students during pre-registration and registration, and attending SOAR, Explore, and Majors Day. Peers also have 1-2 office hours per week, during which they advise students, maintain the informational bulletin boards, and complete other duties as necessary for the PASS Center. Selection is through a competitive application and interview process in February and March. *May be repeated for credit.*

**PSYC 3808. Undergraduate Teaching Assistantship. (3)** Prerequisites: Psychology major, Junior standing, overall GPA of 2.75 or above, and a Psychology GPA of 3.0 or above. Undergraduate teaching assistants (UGTAs) assist faculty with the administration of courses, hold review and practice sessions for students needing assistance. All UGTAs will be expected to meet with the supervising faculty member once a week, attend all class meetings of the course in which they are assisting, hold a minimum of two office hours per week, and complete other activities as requested by the instructor. Students wanting to become UGTAs may apply to the faculty listed in the schedule of classes as PSYC 3808 instructors. The selection process is competitive. *May be repeated for credit one time.*

**PSYC 4140. Tests and Measurements. (3)** Prerequisite: PSYC 1101 and STAT 1220, STAT 1221, or STAT 1222, all with grades of C or above. Psychological and educational measurements in current use with emphasis on structure, administration and application of group tests. Individual tests such as Stanford-Binet, WISC and WAIS will be reviewed.

**PSYC 4152. Psychology of Exceptional Children. (3)**  
Prerequisite: PSYC 1101 with grade of C or above. Assessing and treating the exceptional child. Emphasis on current research in several diagnostic categories, including the emotionally disturbed, learning disabled, intellectually challenged, physically disabled, and gifted.

**PSYC 4316. Cognitive Neuroscience. (3)**  
Prerequisites: PSYC 1101 and PSYC 2113 with grades of C or above, or permission of instructor. Biological basis of consciousness and the neurobiology of mental processes by which we perceive, act, learn, and remember; representation of mental processes from electrophysiological and brain imaging techniques, clinical neurology, and computational science.

**PSYC 4603. History and Systems of Psychology. (3)**  
Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts. Historical antecedents and origins of modern psychology. Emphasis on influential psychological systems such as behaviorism and psychoanalysis. May be used in fulfillment of the capstone requirement for the major.

**PSYC 4606. Advanced Topics in Psychology. (3)**  
Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts. Examination of special psychological topics. May be used in fulfillment of the capstone requirement for the major.

**PSYC 4612. Seminar in Behavior Modification. (3)**  
Prerequisites: Psychology major; Senior standing; PSYC 1101, PSYC 2101, PSYC 2103, PSYC 2112, PSYC 3112, and STAT 1220, STAT 1221, or STAT 1222, all with grades of C or above within two attempts. Current issues in behavior modification, including an integration of principles, techniques and practical experiences. Emphasizes development of written and oral communication skills.

**PSYC 4613. Seminar in Physiological Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts. (PSYC 3113 or equivalent strongly recommended.) Intensive study of selected topics in physiological psychology, such as psychopharmacology, biofeedback and self-regulation, and sleeping and waking. Emphasizes development of written and oral communication skills.

**PSYC 4619. Seminar in Experimental Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior

standing; PSYC 1101; PSYC 2101; PSYC 2103; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts. In-depth examination of an area of current concern in the psychological laboratory. Each semester has a different focus such as discrimination, learning, memory, experimental analysis of behavior and attention. Emphasizes development of written and oral communication skills.

**PSYC 4625. Seminar in Developmental Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts; and PSYC 2120, PSYC 2121, or PSYC 2124, all with grades of C or above. Concentrated examination of selected current issues and research in a field of developmental psychology. Emphasizes development of written and oral communication skills.

**PSYC 4630. Seminar in Social Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; and STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts; and PSYC 3130 with grade of C or above. Intensive study at the advanced level of topics of current research and theoretical interest in social psychology. Emphasizes development of written and oral communication skills.

**PSYC 4650. Seminar in Human Adaptation and Behavior. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts; and permission of department. Intensive reading and discussion in selected areas of psychology, such as stress, personality, emotions and psychopathology. Emphasizes development of written and oral communication skills.

**PSYC 4655. Seminar in Community Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts; and PSYC 2150 and PSYC 3155 with grades of C or above. Application of psychological research findings to specific problems in the community with emphasis on problems hypothesized directly to affect psychological well-being. Emphasizes development of written and oral communication skills.

**PSYC 4660. Seminar in Health Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; STAT 1220, STAT 1221, or STAT 1222; all with grades of C or

above within two attempts; and PSYC 2160 with grade of C or above. Detailed examination of issues relevant to health and behavior. Readings and discussion of health-related concepts and controversies current in the professional literature. Emphasizes development of written and oral communication skills.

**PSYC 4670. Seminar in Industrial Psychology. (3) (O, W)** Prerequisites: Psychology major; Senior standing; PSYC 1101; PSYC 2101; PSYC 2103; STAT 1220, STAT 1221, or STAT 1222; all with grades of C or above within two attempts; and PSYC 2171 with grade of C or above. Topics of current concern in industrial/organizational psychology and related disciplines, including issues that affect individuals at work and organizations in society. Emphasizes development of written and oral communication skills.

**PSYC 4690. Honors Thesis I. (3)** Prerequisites: Psychology major; Junior or Senior standing; PSYC 1101, and STAT 1220, STAT 1221, or STAT 1222 with grades of C or above within two attempts; PSYC 2101 and PSYC 2103 with grades of B or above; and permission of instructor. Initiation of independent Honors research, including the preparation and defense of a formal thesis proposal.

**PSYC 4691. Honors Thesis II. (3) (O, W)** Prerequisites: Psychology major; Junior or Senior standing; PSYC 1101, and STAT 1220, STAT 1221, or STAT 1222 with grades of C or above within two attempts; PSYC 2101, PSYC 2103, and PSYC 4690 with grades of B or above; permission of instructor; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Completion of independent Honors research, including the preparation and defense of a formal Honors thesis. May be used in fulfillment of the capstone requirement for the major.

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## Reading, Language, and Literacy (READ)

**READ 3224. Teaching Reading to Primary Level Learners. (3)** Prerequisite: Admission to Teacher Education. Research, theory, and instructional practice related to the reading process and reading instruction in the elementary school with a focus on assessment of emergent reading behaviors; language development and reading; phonics and phonemic awareness; balanced literacy; and meeting the needs of diverse learners. Includes an extensive field-based component.

**READ 3226. Teaching Reading to Intermediate Grade Learners. (3)** Prerequisite: Admission to Teacher Education. Research, theory, and instructional

practice related to integrating the communication processes with all subject areas, vocabulary, comprehension, study skills, authentic, assessment-based instruction, addressing the needs of diverse and struggling readers. Includes an extensive, field-based component.

**READ 3255. Integrating Reading and Writing Across Content Areas. (3) (W)** Prerequisite: Admission to Teacher Education. Theories, research, and instructional methods, associated with reading and writing in the content areas of the middle and secondary school curriculum. Includes an extensive field-based component.

**READ 4161. Assessment, Design, and Implementation of Classroom Reading Instruction. (3)** Prerequisites: Admission to Teacher Education and the Minor in Reading Education; and READ 3224. Pre- or corequisite: READ 3226 or READ 3255. Techniques for assessing reading development and using assessment data to design and implement responsive reading instruction. Includes a minimum of 10-15 hours of field experience.

**READ 4205. Reading and Writing Across Digital Spaces. (3)** Prerequisite: Admission to Teacher Education and the Reading Education Minor. Pedagogical techniques in reading and writing instruction using Web 2.0 technologies and digital computing devices. Includes 10 hours of field experience.

**READ 4270. Investigating Reading Curriculum. (3)** Prerequisite: Admission to Teacher Education and the Minor in Reading Education; READ 3224; and READ 3226. Examination of the current models and theories for teaching reading; the best practices for literacy growth and development; the instructional tools and techniques available to the teacher of literacy; and the materials for use in teaching reading in grades K-8. Emphasis is on teaching through a balanced literacy approach. Includes 10 hours of field experience.

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## Religious Studies (RELS)

*Note: Depending on how respective sections of RELS courses are taught, a course could fulfill the requirement for Cultural Analysis [C], Historical Analysis [H], or Textual Analysis [T] for the B.A. in Religious Studies. Students **must** consult the course descriptions circulated each semester to determine which designations have been assigned to a particular course.*

**RELS 1101. Introduction to Religious Studies. (3) (W)** An introduction to the study of the religious dimensions of human existence. *Fulfills the [C] or [T]*

requirement.

**RELS 1120. The Bible and Its Interpreters. (3)** An introduction to the history of biblical interpretation from the pre-canonical era to the present. *Fulfills the [H] or [T] requirement.*

**RELS 1200. World Religions. (3)** A study of the historical origins, central teachings, and devotional practices of the major religious traditions - Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity, and Islam - alongside those of smaller and newer religious movements.

**RELS 2000. Topics in Religious Studies. (1-3)** Credit hours vary with topics. *May be repeated for credit with change of topic. Fulfills the [C] or [T] requirement.*

**RELS 2101. Introduction to Western Religions. (3)** An introduction to Judaism, Christianity, Islam and other selected religions. Emphasis on the myths, stories, symbols, rituals, ideas, and ethical practices of these religions in their classical formulations and in their contemporary practices. *Fulfills the [H] or [T] requirement.*

**RELS 2102. Introduction to Asian Religions. (3)** An introduction to Hinduism, Buddhism, and other selected religions such as Confucianism, Daoism, and Islam. Emphasis on the myths, stories, symbols, rituals, ideas, and ethical practices of these religions in their classical formulations and in their contemporary practices. *Fulfills the [C] or [T] requirement.*

**RELS 2104. Hebrew Scriptures/Old Testament. (3)** The Hebrew religious tradition from the perspective of its development in the culture of the ancient Near East. *Fulfills the [H] or [T] requirement.*

**RELS 2105. New Testament and Christian Origins. (3)** Emergence of Christianity in its cultural context. Analysis of selected early Christian writings in English translation. *Fulfills the [H] or [T] requirement.*

**RELS 2107. Native American Religions. (3)** An introduction to various dimensions of the religious experience of North American First Peoples, including other-than-human and human persons; myth and orality; sacred space, time, and objects; lifeways and ceremonies; tradition and change. Special emphasis is placed on past and present imaginings of Native American religions. *Fulfills the [C] or [H] requirement.*

**RELS 2108. Religion in American Culture. (3)** The role of religion in the shaping of American culture. *Fulfills the [C] or [H] requirement.*

**RELS 2109. Death and the Afterlife. (3)** A survey of beliefs and rituals relating to dying, death, and the afterlife as found in religious, philosophical, and literary texts and in art and architecture.

**RELS 2110. Judaism. (3)** The development of Jewish religious thought from antiquity to the present. *Fulfills the [H] or [T] requirement.*

**RELS 2120. Christianity. (3)** The world-wide development of the thought and practices of diverse Christian traditions from antiquity to the present. *Fulfills the [H] or [T] requirement.*

**RELS 2131. Islam. (3)** The development of the traditions in Islam with emphasis on Islamic culture, literature, and mysticism. *Fulfills the [H] or [T] requirement.*

**RELS 2154. Hinduism. (3)** The ancient Vedic traditions and the development of Hinduism. Emphasis is on the role of Hinduism in Indian civilization. *Fulfills the [H] or [T] requirement.*

**RELS 2157. South Asian Buddhism. (3)** The historical development of Buddhism during its first 2,500 years with particular emphasis on its diverse manifestations in South Asia. *Fulfills the [H] or [T] requirement.*

**RELS 2166. Daoism. (3)** A thematic and historical exploration of a major indigenous religious tradition of China, with particular attention devoted to early, medieval, and modern practices and worldviews. *Fulfills the [H] or [T] requirement.*

**RELS 2169. Mahāyāna Buddhism in East Asia. (3)** An exploration of the various ways the religious ideal of the bodhisattva has been imagined and employed in devotional practice in Mahāyāna Buddhist traditions in China, Korea, Japan, Vietnam, and the United States. *Fulfills the [H] or [T] requirement.*

**RELS 2216. The Modern Middle East. (3)** Cross-listed as HIST 2216. An introduction to the history of this important and dynamic region. The course focuses on the issues that have defined the Middle East in the recent past and provides students with the historical context needed to understand the region, its peoples, and its conflicts in greater depth. *Fulfills the [C] or [H] requirement.*

**RELS 2600. Orientation to the Study of Religion. (3)** (W) Prerequisite: Religious Studies major. Required of all majors as early in their program as possible. Examines basic concepts, theories, and approaches that are involved in the critical, academic study of religion. Attention given to basic research materials and

to standard writing practices in the discipline.

**RELS 3000. Special Topics in Religious Studies. (3)**

Treatment of a special topic in religious studies. *May be repeated for credit with change of topic.* Same as RELS 3001, but does not fulfill the General Education writing goal. *Fulfills the [C], [H], or [T] requirement.*

**RELS 3001. Special Topics in Religious Studies-Writing Intensive. (3) (W)**

Treatment of a special topic in religious studies. *May be repeated for credit with change of topic.* Same as RELS 3000, but fulfills the General Education writing goal. *Fulfills the [C], [H], or [T] requirement.*

**RELS 3090. Readings in Primary Texts. (3)**

Introductory and/or intermediate level readings of ancient and medieval primary source texts in languages such as Greek, Latin, Hebrew, Aramaic, Arabic, Sanskrit, or Chinese. *May be repeated for credit with change of topic.* *Fulfills the [T] requirement.*

**RELS 3101. Greek Myths and Religions. (3)**

The gods and goddesses, heroes and heroines in ancient Greek myths and religions; Greek myth and later Western religions; polytheism and monotheism; functions of myth; and contemporary interpretations of Greek myth. *Fulfills the [H] or [T] requirement.*

**RELS 3104. Prophecy and Prophetic Literature in Ancient Israel. (3)**

Prerequisite: RELS 2104 or permission of instructor. An examination of the phenomenon of prophecy in the religion of ancient Israel, with particular attention devoted to the writings about and writings attributed to named prophets in the Hebrew Bible. *Fulfills the [H] or [T] requirement.*

**RELS 3107. The Psalms and Wisdom Literature of Israel. (3)**

Prerequisite: RELS 2104 or permission of instructor. The origin and content of the Psalms and the place of wisdom literature in the development of Hebrew thought. *Fulfills the [H] or [T] requirement.*

**RELS 3111. Women in Judaism. (3)**

Cross-listed as WGST 3111. A survey of the roles and activities of Jewish women throughout Jewish history as they are portrayed in a diverse sampling of Jewish religious literature and practice. *Fulfills the [H] or [T] requirement.*

**RELS 3113. Jesus. (3)**

Prerequisite: RELS 2105 is recommended. Jesus and the religion he taught from the point of view of the synoptic gospels. *Fulfills the [H] or [T] requirement.*

**RELS 3115. Early Christianity. (3)**

The history of Christianity in the second-seventh centuries C.E.

Topics may include martyrdom and persecution, heresy and orthodoxy, constructions of gender and sexuality in early Christianity, church-state relations, asceticism and monasticism, Constantine, and the Christianization of the Roman Empire. *Fulfills the [H] or [T] requirement.*

**RELS 3116. Paul. (3)**

A close study of the writings of the apostle Paul in their historical contexts with consideration of the ways in which they played a role in the development of the emerging Christian movement. *Fulfills the [H] or [T] requirement.*

**RELS 3122. Esoteric Traditions. (3)**

The study of one or more particular expressions of religious esotericism (e.g., Jewish Kabbalah; Hindu Tantra; etc.). *May be repeated for credit with change of topic.* *Fulfills the [C] or [T] requirement.*

**RELS 3129. Christian Controversies. (3)**

An exploration of Christian responses to ethical, cultural, political, and theological conflicts. The issues are selected to represent a range of time periods in the history of various Christian traditions. *Fulfills the [H] or [T] requirement.*

**RELS 3135. Religion in Nineteenth Century America. (3)**

Examination of religious thought, practices, and movements in nineteenth century America. *Fulfills the [C] or [H] requirement.*

**RELS 3137. Religion in the African American Experience. (3)**

An introduction to the evolution of black religious thought and culture in America during the twentieth century. Emphasizes the rise of the Black Church and its expanding role within black urban communities in America. Also addresses the emergence of other religious belief systems in contemporary Black culture such as Voodoo, Santeria, Spiritist churches, the Nation of Islam, and even Black Judaism. Issues of race, class, gender, identity, and violence are points of discussion in light of black religious life. *Fulfills the [C] or [H] requirement.*

**RELS 3150. African American Church and Civil Rights. (3)**

Cross-listed as AFRS 3150. Role of the African American church in the struggle for human equality. Topics such as radical, moderate, and accommodationist leadership styles; historical development of the Black Church in the South; and the Black Church's emergence as a foundation for modern civil rights movement. *Fulfills the [C] or [H] requirement.*

**RELS 3163. The Religious Art and Architecture of India. (3)**

The visual art of Hindus, Buddhists, Jainas, and Muslims in the architecture, paintings, and sculptures of India. *Fulfills the [C] or [H] requirement.*

**RELS 3209. Religion and Literature. (3)** An examination of religious themes and questions as presented in contemporary and traditional literature. Focus may be on an artist, genre (novel, poetry, drama), or topic. Although the focus of this course may vary, it may only be taken once for credit. *Fulfills the [C] or [T] requirement.*

**RELS 3210. Religion and Popular Culture. (3)** An examination of the interactions and intertwining of religion and popular culture. Topics may include, but are not limited to, popular literature, domestic rituals, material and visual cultures, space and place, fan cultures, media, and folklore. Emphasis on how religion and popular culture shape and are shaped by issues of identity, community, nostalgia, memory, commercialism, capitalism, power, and meaning. *Fulfills the [C] or [T] requirement.*

**RELS 3212. Religion and Film. (3) (W)** An examination of religious identity, alienation, search, discovery, sexuality, and death as reflected in recent American movies and foreign films. Film laboratory required. Although the focus of this course may vary, it may only be taken once for credit. *Fulfills the [C] or [T] requirement.*

**RELS 3213. Jesus on the Silver Screen. (3)** An examination of cinematic representations of Jesus with attention to their relation to the historical, social, and political circumstances of their production and to ongoing conversation about the character, meaning, and significance of the Jesus story.

**RELS 3215. Religion and Sexuality. (3)** Cross-listed as WGST 3215. An examination of the role of religious discourses and practices in shaping, understanding, and evaluating sexual practices, desires and identities. Although the focus of this course may vary, it may only be taken once for credit. *Fulfills the [C] or [T] requirement.*

**RELS 3220. Religion and Masculinity. (3)** Cross-listed as WGST 3216. An examination of the role of religious discourses and practices in shaping, regulating, and evaluating masculine identities and practices. Although the focus of this course may vary, it may only be taken once for credit. *Fulfills the [C] or [T] requirement.*

**RELS 3230. Race, Religion and Murder. (3)** An introduction to the intersection of race, religion, and violence in American culture. Addresses how Judeo-Christian, Islamic, and Asian traditions have been used to justify and even condone acts of violence against women, children, and peoples of color. *Fulfills the [C] or [T] requirement.*

**RELS 3232. Islam in the African American Experience. (3)** An examination of the historical practices of Islam and its varied forms within African American culture. A key component of the course centers around the narratives of Nobel Drew Ali, Elijah Muhammad, Malcolm X, Wraith Dean Muhammad, and Louis Farrakhan. Also has a gendered component looking at the leadership of black women within Islam, the Nation of Islam, and Moorish Science. *Fulfills the [C] or [H] requirement.*

**RELS 3242. Philosophy of Religion. (3)** Cross-listed as PHIL 3530. Philosophical implications of religious experience, including the definitions, development, and diverse forms of the problems of belief and reason in modern thought. *Fulfills the [C] or [T] requirement.*

**RELS 3244. Natural, Unnatural, Supernatural. (3)** Does God exist? What are God's attributes? Do miracles happen? Is there life after death? Where does evil come from in a world created "good"? What is "the human condition"? This course sets these questions in historical perspective in the West but focuses primarily on answers proposed by modern thinkers.

**RELS 3250. The Power of Mourning. (3)** A theoretical examination of mourning and the ethical/political implications of mourning for our understanding of power, agency, and hope. *Fulfills the [C] or [T] requirement.*

**RELS 3300. The Performance of Healing. (3)** An examination of practices of healing and their concomitant discourses of illness, health, body, society, and cosmos across selected religious and secular traditions. *Fulfills the [C] or [T] requirement.*

**RELS 3400. Applied Research/Field Work. (3)** Prerequisites: Religious Studies major or minor, 9 earned credit hours in religious studies, and permission of instructor. Research and in-service training in business or community-based organizations. Specific content based on contract between student, supervising professor and cooperating organization. *Fulfills the [C], [H], or [T] requirement.* Approximately 120 contact hours for the semester.

**RELS 3450. Study Abroad for Religious Studies Majors. (3-6)** Prerequisite: Permission of department. The examination of an approved topic in the context of study abroad. *Fulfills the [C], [H], or [T] requirement.*

**RELS 4000. Seminar in Religious Studies. (3)** Prerequisite: Permission of instructor. *May be repeated for credit with change of topic.* *Fulfills the [C], [H], or [T] requirement.*

**RELS 4010. Major Figure in Religious Studies. (3) (W)** A focused examination of the life and works of a major figure, or small set of related figures, and their significance for the study of religion. *May be repeated for credit for different figures. Fulfills the [H] or [T] requirement.*

**RELS 4020. Major Text in Religious Studies. (3)** A focused examination of an important primary text, or small range of primary texts, in the study of religion. The text may be a sacred text from a religious tradition or a theoretical text important in the study of religion. *May be repeated for credit for different texts. Fulfills the [H] or [T] requirement.*

**RELS 4030. Major Period in Religious History. (3)** A focused examination of a discreet and important period in religious history. Examines social, political, cultural, artistic, and economic dimensions of a given period with respect to how they shaped, and were shaped by, religion. *May be repeated for credit for different periods. Fulfills the [H] requirement.*

**RELS 4040. Major Approach to the Study of Religion. (3)** A focused examination of an influential classic or contemporary approach to the study of religion, or small set of related approaches. Focuses on close reading of primary texts and developing students' critical engagement with the texts through writing and discussion. *May be repeated for credit for different approaches. Fulfills the [C] or [T] requirement.*

**RELS 4107. Early Judaism. (3)** Prerequisite: RELS 2104, RELS 2105, RELS 2110, or permission of instructor. Comparative historical and literary study of the varieties of Judaism evidenced during late antiquity (circa 70-640 C.E.), with special attention devoted to the information and development of rabbinic Judaism. *Fulfills the [H] or [T] requirement.*

**RELS 4108. Medieval Judaism. (3)** Prerequisite: RELS 2104, RELS 2110, or permission of instructor. Comparative historical and literary study of the varieties of Judaism evidenced in Western Europe, the Byzantine Empire, and Islamicate realms from approximately 640 C.E. to approximately 1492 C.E. *Fulfills the [H] or [T] requirement.*

**RELS 4109. Modern Judaism. (3)** Prerequisite: RELS 2110, RELS 4107, RELS 4108, or permission of instructor. Historical and conceptual study of Judaism and Jewish experience in Europe, America, and Israel, from the sixteenth century to the present, with special attention paid to the development of denominations, Zionism, and the Holocaust. *Fulfills the [H] or [T] requirement.*

**RELS 4110. Contemporary Jewish Thought. (3)** An examination of philosophy, religion, morality, politics, sociality, culture, family, and self-identity in the light of modern and recent Jewish thought. *Fulfills the [C] or [T] requirement.*

**RELS 4121. Medieval and Reformation Christianity. (3)** An examination of Christian thought and practice from the early Middle Ages (c. 500 CE) through the reformations of the sixteenth century. *Fulfills the [H] or [T] requirement.*

**RELS 4125. Witches, Saints, and Heretics. (3)** An examination of the categories "normal" and "deviant" as formulated in select cultural traditions. Focus will be on examining constructions of individual identity and cultural boundaries through close reading of primary texts alongside recent films, works of fiction, and scholarly interpretations. *Fulfills the [C] or [T] requirement.*

**RELS 4127. Material Christianity. (3)** An examination of the ways individuals and groups throughout the Christian tradition have invested material objects with sanctity and power. Much of the course is devoted to exploring theoretical models and theological warrants for practices related to objects. *Fulfills the [C] or [T] requirement.*

**RELS 4150. Religion in the Contemporary United States. (3)** An examination of selected topics and issues concerning contemporary American religion and culture. Topics may include, but are not limited to, religion and politics, the numerical decline of some religious groups and the explosive growth of others, the increased visibility of combinative religious practices and beliefs, new religious movements, and the intertwining of religions, popular culture, and consumer capitalism. *Fulfills the [C] or [T] requirement.*

**RELS 4160. Religion as Social. (3)** An examination of theories and approaches which focus on religion as social. Attention is paid to both classical and contemporary social theories of religion.

**RELS 4201. Religion, Morality, and Justice. (3)** An exploration of the ethical and social dimensions of selected religious traditions in their cultural contexts. *Fulfills the [C] or [T] requirement.*

**RELS 4300. Religion and the Body. (3)** An examination of the relationship between religious discourses and practices and the perceptions and experiences of an embodied subject. *Fulfills the [C] or [T] requirement.*

**RELS 4340. Theories of Sacrifice. (3)** An

examination of classical and contemporary understandings of the history, meaning, and cultural significance of sacrifice. *Fulfills the [C] or [H] requirement.*

**RELS 4400. Method and Theory in the Study of Religion. (3)** A close examination of primary texts representing influential classical and contemporary approaches to the study of religion. Attention given to student writing and oral presentation skills. Required of all honors students. *Fulfills the [C] or [T] requirement.*

**RELS 4600. Senior Seminar. (3) (O,W)** Required of majors in final year of studies.

**RELS 4700. Honors Thesis. (3)** Prerequisites: Permission of instructor and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Required of all honors students. *May be repeated for credit one time.*

**RELS 4800. Independent Studies. (1-3)** Prerequisite: Permission of instructor. *May be repeated for credit.*

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## Respiratory Therapy (RESP)

**RESP 3101. Professional Roles and Dimensions of Respiratory Therapy. (3)** Prerequisite: Admittance into RT program. An introduction to the history, trends, issues, and evolution of the respiratory therapy profession. Topics include: an overview of selected respiratory theories and an analysis of the professional environment for the current and future practice of respiratory care. Topics and emphasis may vary. Students develop a personal professional portfolio as part of the course.

**RESP 3102. Outpatient Services in Respiratory Therapy. (3)** Prerequisite: Admittance into RT program. An introduction to the history, trends, issues, and evolution of the outpatient services and reimbursement and the respiratory therapy profession. Topics include: select respiratory care theories and practices in alternate-care sites including pulmonary diagnostics, pulmonary rehabilitation, home care, sub-acute care. Topics and emphasis may vary.

**RESP 3103. Advanced Pharmacology in Respiratory Therapy. (3)** Prerequisite: Admittance into RT program. A disease management approach to patient care with an emphasis on the role of pharmacology in disease management. Builds upon a basic understanding of the concepts and principles of pharmacology as applied in the respiratory therapy in

the management of patient with cardiopulmonary disease and critical care.

**RESP 3105. Advanced Critical Care Monitoring. (3)** Prerequisite: Admittance into RT program. A study of advanced cardiopulmonary monitoring used with critical care patients. Topics include: hemodynamic monitoring, mechanical ventilator waveform graphic analysis, and capnography.

**RESP 3204. Advanced Cardiopulmonary Physiology. (3)** Prerequisite: Admittance into RT program. Advanced physiology of the cardiovascular and pulmonary systems. A study of respiratory physiology, cardiac and circulatory function with relevant clinical application of concepts in cell biology, regulation and function of the cardiovascular system, gas exchange and transport, breathing regulation, and respiratory insufficiency.

**RESP 4101. Program Design, Implementation, and Outcomes Evaluation. (3)** Prerequisite: RESP 3101. Evidence-based methods and techniques to design, implement, and evaluate healthcare quality control/improvement initiatives, and patient and population education programs.

**RESP 4102. Program Administration. (3) (O)** Prerequisite: RESP 3101. Administration, financial, human resource, legal, and policy concepts and issues in outpatient, inpatient, public, and private sector settings. Topics and emphases may vary.

**RESP 4103. Evidence-Based Practice in Respiratory Care. (3) (W)** Prerequisite: Admittance into RT program. An introduction to the concept of evidence-based practice and an opportunity to acquire the skills necessary to be able to incorporate evidence and best practices into professional work. These include an understanding of research methods and the approach to critical appraisal of research literature. This is a writing-intensive course with emphasis on written professional communication.

**RESP 4204. Advanced Critical Care Pathophysiology. (3)** Prerequisite: Admittance into RT program; RESP 3204. A survey of the disease processes which affect the tissues, organs, or body as a whole. Special emphasis is placed on the etiology of critical illness and a systems-oriented approach to diagnosis and treatment in the critical care setting.

**RESP 4111. Respiratory Therapy Capstone. (9) (W)** Prerequisites: RESP 4101, RESP 4102, and RESP 4103. Experiences in a chosen focus area (clinical, administrative, or population-based). It culminates with a capstone project in the form of research, or other scholarly activity that articulates the design,

organization, statistics and data analysis used, and includes an oral and written presentation of the project.

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## Russian (RUSS)

**RUSS 1201. Elementary Russian I. (4)**  
Fundamentals of the Russian language, including speaking, listening comprehension, reading, and writing.

**RUSS 1202. Elementary Russian II. (4)**  
Prerequisite: RUSS 1201. Fundamentals of the Russian language, including speaking, listening comprehension, reading, and writing.

**RUSS 2201. Intermediate Russian I. (4)**  
Prerequisite: RUSS 1202 or permission of department. Review of grammar, with conversation and composition based upon readings in Russian culture and civilization.

**RUSS 2202. Intermediate Russian II. (4)**  
Prerequisite: RUSS 2201 or permission of department. Continuation of grammar, conversation, and composition skills, based on readings in Russian literature.

**RUSS 3060. Topics in Russian. (3) (W)**  
Prerequisite: one RUSS 2000-level course or permission of instructor. Study of a particular facet of the Russian language, culture, or literature. Conducted in English. No knowledge of Russian required. *May be repeated with change of topic.*

**RUSS 3061. Topics in Russian. (1-3)** Prerequisite: one RUSS 2000-level course or permission of instructor. Study of a particular facet of the Russian language, culture, or literature. Conducted in English. No knowledge of Russian required. *May be repeated with change of topic.*

**RUSS 3201. Advanced Russian Grammar, Composition, and Conversation I. (3)** Prerequisite: RUSS 2202 or permission of department. Intensive review of Russian grammar, plus mastery of new grammatical structures, while performing written and oral task-oriented activities. Acquisition of new vocabulary in a cultural context.

**RUSS 3202. Advanced Russian Grammar, Composition, and Conversation II. (3)** Prerequisite: RUSS 3201 or permission of department. Intensive practice of Russian grammar, speaking, and writing. Additional Russian civilization and culture as students improve their language skills.

**RUSS 3204. Masterpieces of Russian Literature. (3) (W)** Examines the greatest authors and masterpieces

of Russian literature, including Tolstoy, Dostoevsky, and Chekhov. All readings, discussions, and assignments are conducted in English. No knowledge of Russian required.

**RUSS 3209. Russian Civilization and Culture. (3) (W)** Geographical, historical, and artistic features of Russian culture, as well as aspects of life, thought, behavior, attitudes, and customs of the Russian-speaking people. Lectures, discussions, and viewing of films. Conducted in English. No knowledge of Russian required.

**RUSS 3800. Directed Individual Study. (1-4)**  
Prerequisite: RUSS 3202 or permission of department. To be arranged with the instructor. *May be repeated for credit.*

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## Secondary Education (SECD)

**SECD 3140. The Adolescent Learner. (3)**  
Characteristics of the adolescent learner, including the impact on the classroom of physical, social, cognitive, moral, vocational, and affective developmental factors and multicultural issues. Field-based activities include observation and tutoring in school and non-school settings; 15 hours of field experiences.

**SECD 3141. Secondary Schools. (3)** Prerequisite: Admission to Teacher Education. Overview of secondary education with emphasis on the foundational components and instructional programs appropriate for contemporary adolescents in American society. Includes 15 hours of field experiences.

**SECD 3142. Issues in Secondary Education. (2)**  
Prerequisite: Admission to Teacher Education. Corequisites: EDUC 4291 and a content methods course. Integration of preservice education and academic concentration coursework in a pre-student-teaching field experience. Students choose from sections of the course that focus on a contextual issue of particular interest while working in a setting where the issue exists. Students may take as many different Issues sections as their schedules permit. Includes 30 hours of field experiences.

**SECD 3800. Individual Study in Secondary Education. (1-6)** Prerequisite: Permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. *May be repeated for credit.*

**SECD 4140. Adolescence and Secondary Schools. (3)** Prerequisites: MDSK 2100 and admission to Teacher Education. Corequisite: MDSK 3151. Overview of secondary education, including the foundational

components and instructional programs appropriate for contemporary adolescents in a diverse U.S. society.

**SECD 4451. Student Teaching/Seminar: 9-12 Secondary English. (12) (O)** Prerequisite: Departmental permission for admission to student teaching. Corequisite: MDSK 4150. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a university supervisor and a cooperating teacher. During student teaching the student must demonstrate the competencies identified for his/her specific teaching field in an appropriate grade level setting. Approximately 35-40 hours per week in an assigned school setting. Six-to-eight on-campus seminars scheduled throughout the semester.

**SECD 4452. Student Teaching/Seminar: 9-12 Secondary Math. (12) (O)** Prerequisite: Departmental permission for admission to student teaching. Corequisite: MDSK 4150. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a university supervisor and a cooperating teacher. During student teaching the student must demonstrate the competencies identified for his/her specific teaching field in an appropriate grade level setting. Approximately 35-40 hours per week in an assigned school setting. Six-to-eight on-campus seminars scheduled throughout the semester.

**SECD 4453. Student Teaching/Seminar: 9-12 Secondary Science. (12) (O)** Prerequisite: Departmental permission for admission to student teaching. Corequisite: MDSK 4150. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a university supervisor and a cooperating teacher. During student teaching the student must demonstrate the competencies identified for his/her specific teaching field in an appropriate grade level setting. Approximately 35-40 hours per week in an assigned school setting. Six-to-eight on-campus seminars scheduled throughout the semester.

**SECD 4454. Student Teaching/Seminar: 9-12 Secondary Social Studies. (12) (O)** Prerequisite: Departmental permission for admission to student teaching. Corequisite: MDSK 4150. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a university supervisor and a cooperating teacher. During student teaching the student must demonstrate the competencies identified for his/her specific teaching

field in an appropriate grade level setting. Approximately 35-40 hours per week in an assigned school setting. Six-to-eight on-campus seminars scheduled throughout the semester.

**SECD 4472. Secondary Education Clinical Experience. (3)** Program of learning activities in the student's area of academic concentration in an approved school setting.

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## Systems Engineering (SEGR)

*Courses must be completed to progress within three attempts including withdrawing from the course with a grade of W. Failure to progress in three attempts will result in suspension from the program.*

**SEGR 2101. Systems Engineering Concepts. (3)** Prerequisite: ENGR I202 with grade of C or above. This course provides the foundation for systems engineering processes and practices. The contents cover the discussion of current systems issues, basic systems engineering processes, and the roles of systems engineering professionals in a global business environment. It also will cover the principles of mechanical drawing and computer aided design (CAD) for systems engineering applications.

**SEGR 2105. Computational Methods for Systems Engineering I. (3)** Prerequisites: Sophomore standing; ENGR 1202, MATH 1241, and MATH 1242 with grades of C or above. Introduces programming languages and computational tools that are often used by Systems Engineers. Programming in C and Matlab will be emphasized. Spreadsheet-based modeling are introduced.

**SEGR 2106. Engineering Economic Analysis. (3)** Prerequisite: Sophomore standing or permission of department. Covers economic analysis of engineering alternatives, including time value of money, cash flow analysis, cost estimation, project evaluation, accounting and budgeting tools.

**SEGR 2111. Introduction to Engineering Management. (3)** Prerequisite: ENGR 1202 with grade of C or above. Focuses on the fundamentals in engineering management. It provides students the understanding of engineering management principles and practices and the roles of engineering management professionals in a global business environment.

**SEGR 2121. Introduction to Logistics Systems and Supply Chains. (3)** Prerequisite: ENGR 1202 with grade of C or above. Focuses on the fundamentals in logistics systems and supply chain operations. It provides students the understanding of the operations

in logistics systems and global supply chains and the roles of logistics/supply chain professionals in global business environment.

**SEGR 3101. System Design and Deployment. (3)**

Prerequisite: SEGR 2101 with grade of C or above. Focuses on the basics of systems design, analysis, and implementation. It covers system design elements, system interface issues, system decomposition, and system integration. The emphasis is on the effective design and integration of system operations and successful deployment of systems design results.

**SEGR 3102. System Simulation, Modeling, and Analysis. (3)**

Prerequisite: STAT 3128 with grade of C or above. Focuses on the study of discrete-event simulation and its use in the analysis and design of systems. The emphasis is on using simulation software for simulation modeling and analysis with practical applications to design, analysis, and improvement of diverse systems.

**SEGR 3103. Human System Interface. (3)**

Prerequisite: SEGR 2105 with grade of C or above or permission of department. Focuses on the interfacing issues between human, organization, and systems operations. The emphasis is on the influence of human and cultural factors related to the effectiveness of system operations in a global business environment.

**SEGR 3105. Computational Methods for Systems Engineering II. (3)**

Prerequisite: SEGR 2105 with grade of C or above. This course covers numerical techniques for systems engineers such as Polynomial interpolation, Numerical differentiation and integration, Newton and simple gradient methods for nonlinear equations.

**SEGR 3107. Decision and Risk Analysis. (3)**

Prerequisite: STAT 3128 with grade of C or above. Useful tools for analyzing difficult decisions and making the right choice. After introducing components and challenges of decision making, discusses structuring decisions using decision trees and influence diagrams. Decisions under conflicting objectives and multiple criteria are also covered, as well as sensitivity and risk analysis.

**SEGR 3111. Project Management. (3) (O, W)**

Prerequisite: STAT 3128 with grade of C or above. Focuses on the study of various aspects of project management techniques and issues, and the use of conceptual, analytical, and systems approaches in managing engineering projects and activities. It includes the development and writing of project plans and reports for engineering and business operations.

**SEGR 3112. Value Engineering Management. (3)**

Prerequisite: SEGR 2106 with grade of C or above or permission of department. Analyzes the requirements of a project to achieve the highest performance for essential functions at the lowest costs over the life of the project. The "best value" is achieved by a multidisciplinary team effort through the study of alternative design concepts, materials, and methods.

**SEGR 3114. Production Control Systems. (3)**

Prerequisite: STAT 1220, 1221, 1222, or 3128 with grade of C or above. Principles, analysis and design of production and inventory planning and control systems. Demand forecasting, production scheduling and control systems and introduction to CPM.

**SEGR 3122. Implementation of Logistics Systems and Supply Chains. (3)**

Prerequisite: SEGR 2121 with grade of C or above. Reviews and analyzes real-life logistics and supply chain implementation cases. Different industry supply chains are compared and benchmarking is emphasized through review of industry best practices.

**SEGR 3131. Computer Aided Design & Manufacturing. (3)**

Prerequisite: SEGR 2101 with grade of C or above or permission of department. Focuses on the basics of hardware and software implementation in the design and manufacturing processes. The emphasis is in making the design and manufacturing processes effective and efficient for global business competition.

**SEGR 3132. Facilities Planning & Material Handling Systems. (3)**

Prerequisite: SEGR 2101 with grade of C or above or permission of department. Focuses on the basics in facility planning, plant layout design, material handling systems design and integration, and warehousing. The emphasis is on the effective design and integration of plant layout, material handling systems, and warehousing for supply chain operations.

**SEGR 3290. Systems Design Project I. (1) (O, W)**

Prerequisites: Senior standing and Systems Engineering major. First of a two-semester sequence leading to a major integrative system design experience in applying the principles of systems design and analysis and project management to the design of a system. Teamwork and communication skills are emphasized. It focuses on the development of the project plan and proposal for the capstone systems design project. Each student develops a complete systems design project plan and proposal and makes an oral presentation of the proposal to the faculty. It runs in conjunction with the project management course.

**SEGR 3291. Systems Design Project II. (3) (O, W)**  
Prerequisite: SEGR 3290 with grade of C or above. A continuation of SEGR 3290 for the execution of the proposed systems design project. Includes a mid-term written progress report with an oral presentation and a final written report, plus the final oral presentation to demonstrate project results.

**SEGR 3670. Total Quality Systems. (3)** Prerequisite: STAT 3128 with grade of C or above. An interdisciplinary approach to principles and practice in the applications of continuous quality improvement (CQI) and Total Quality Management (TQM). Classroom work on major applications, re-engineering processes; process mapping, personal effectiveness and time management; technical presentations; CQI tools, statistical process control, designed experimentation; management and planning tools, engineering economy, and case studies; assignments and projects in team building, communication, and group problem solving.

**SEGR 4090. Special Topics. (1-6)** Directed study of current topics of special interest.

**SEGR 4101. Network Modeling and Analysis. (3)**  
Prerequisites: OPRS 3111 with grade of C or above or SEGR 4952 with grade of C or above. This course covers formulation and solution of optimization problems using network flow algorithms. Topics include: minimum flow problems shortest path, maximum flow, transportation, assignment, minimum spanning trees. Efficient solution algorithms are investigated.

**SEGR 4131. Product and Process Design. (3)**  
Prerequisite: SEGR 2101 with grade of C or above or permission of department. Focuses on how to achieve a high-quality, customer-oriented product development process, from technology and product innovation, to design and development, leading up to production. Design for Six Sigma (DFSS) is the main technology discussed plus other product design approaches, such as design for cost, design for safety, and design for environment.

**SEGR 4132. Automation and Systems Design. (3)**  
Prerequisite: SEGR 3132 with grade of C or above. Focuses on the concepts of systems design, manufacturing systems design, manufacturing process control, shop floor control, and automation. The emphasis is on automation for economic and flexible manufacturing operations that can handle frequently changing global manufacturing requirements.

**SEGR 4133. Lean Manufacturing Systems. (3)**  
Prerequisite: SEGR 3132 with grade of C or above. Focuses on the fundamentals of how manufacturing

operations work, and talk about the latest techniques to make your manufacturing organization successful. This course discusses how lean methodology can eliminate waste and increase the speed in manufacturing while reducing cycle times.

**SEGR 4141. Engineering Experimental Design. (3)**  
Prerequisite: STAT 3128 with grade of C or above. Focuses on how to achieve high-quality/low-cost systems based on Taguchi methods, design of experiments methods, and statistical analysis of data. Also includes introduction to response surface methods.

**SEGR 4142. Reliability Management. (3)**  
Prerequisite: STAT 3128 with grade of C or above. Focuses on measuring, evaluating, improving and managing reliability. Topics include: basic reliability models, hazard rate functions, system reliability, and fault tree analysis.

**SEGR 4150. Leadership Skills for Engineers. (3)**  
Prerequisite: Junior standing. Overview of the skills needed to practice the most popular leadership styles in industry today. The first half of the course covers an introduction to the different styles of leadership and how they are applied by engineers within an organization. The second half of the course covers the critical leadership skills and competencies needed to build and lead powerful teams in a global environment.

**SEGR 4952. Engineering System Optimization. (3)**  
Prerequisite: Senior standing and OPRS 3111 with grade of C or above. A systems engineering approach will be followed to analyze practical applications from different engineering disciplines and to optimize complex systems. Model formulation, sensitivity analysis, special cases, solutions using commercially available software applications and practical implementation considerations will be emphasized.

**SEGR 4961. Introduction to Energy Systems. (3)**  
Prerequisite: Junior standing; basic math, economics, or permission of instructor. Overview of energy systems: energy types, generation, conversion, storage, transportation/transmission, and utilization. Principles, physical structure, processes, and utilization of fossil fuel, nuclear, and renewables for transportation, thermal, and electrical energy generation are discussed along with associated performance metrics. Also provides an introduction to environmental impacts of energy production, life-cycle analysis, energy efficiency concepts and metrics, transmission systems, grid reliability, and the impact of smart grid technologies. All topics are presented in the context of industry standards as well as federal and state regulations.

**SEGR 4962. Energy Markets. (3)** Pre- or corequisite: SEGR 4961. Prerequisite: Junior standing; basic math, economics, or permission of instructor. Energy and power systems in regulated and competitive environments and implications on business decisions for firms in these industries. Topics include: mechanism of energy markets; comparative market systems; determination of prices under different market structures; gas, oil, coal, and electricity market architecture; electricity market design; dispatch and new build decisions; smart grid and renewable energy in electricity markets; risk and risk management in energy, including demand and price volatility and use of financial derivatives; and the impact of financial market trends and current and proposed policies on the energy industry.

**SEGR 4963. Energy Systems Planning. (3)** Pre- or corequisites: Junior standing and SEGR 4961. Prerequisites: basic math, economics, or permission of instructor. Optimal planning of resources, logistics, distribution and storage in the end to end energy value chain from upstream natural gas production through mid-stream transportation and storage to downstream power generation, utility distribution and consumption. Smart Grid Optimization. Supplier and customer relationship management, contracts management. Lean-Six Sigma energy system process design. Power systems reliability and control, preventive maintenance, predictive maintenance, process and service quality control.

**SEGR 4964. Case Studies in the Energy Industry. (3)** Pre- or corequisite: SEGR 4961. Prerequisites: Junior standing; basic math, economics, or permission of instructor. Interpret and analyze real world business cases in the energy sector. Cases explore the concepts behind natural monopolies, utility ownership, regulation and de-regulation, utility rates, and service standards. Additionally, economic concepts such as supply and demand, market pricing, producer surplus, monopolistic pricing and ratemaking (regulatory goals, revenue requirements, and the rate base and rate cases) are applied. Some of the cases explore decision-making strategies surrounding marginal prices, congestion management, congestion revenue, electric and gas transmission rights both in terms of physical versus financial markets, locational marginal prices (LMP), financial transmission rights in terms of revenue adequacy and auction revenue rights, and typical energy trading hedging practices.

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## Sociology (SOCY)

**SOCY 1101. Introduction to Sociology. (3)** The scientific study of society and its structures, culture and its building blocks, and group interactions; the sociological perspective and process; fundamental

concepts, principles, and procedures to understand society.

**SOCY 2090. Topics in Sociology. (1-3)** Examination of specialized topics. *May be repeated for credit with change of topic.*

**SOCY 2091. Topics in Sociology - Writing Intensive. (1-3) (W)** Examination of specialized topics. *May be repeated for credit with change of topic.*

**SOCY 2100. Aging and the Lifecourse. (3) (SL)** Cross-listed as GRNT 2100. An interdisciplinary course that examines the phenomenon of aging and its consequences for society from a variety of perspectives. Students participate in lectures, discussions and service learning projects designed to give them a broad overview of the field of gerontology. Emphasis on the wide variation in the aging process and approaches to meeting the needs of the aging population.

**SOCY 2107. Global Hip Hop. (3)** Cross-listed as AFRS 2107. The development and growth of Hip Hop from a US inner city Black expressive culture to a global subaltern social movement. Examines cultural production in Hip Hop in relation to the contemporary global issues that focus on the youth, subalterns, and postcolonial experiences.

**SOCY 2112. Popular Culture. (3)** Analysis of popular forms of everyday life in America: fashions, fads, entertainment trends, advertising, television programming, music, myths, stereotypes, and icons of mass-mediated culture.

**SOCY 2115. Introduction to Organizations. (3)** Prerequisite: SOCY 1101 or permission of instructor. The ubiquity of formal organizations is a distinctively modern phenomenon. Today, organizations not only dictate activities at the workplace, but also exert profound impacts on nearly all aspects of modern life. As one of the most vibrant and fast growing branches of the discipline, organizational sociology provides the conceptual tools to understand a variety of organizational processes. In this course, you are introduced to some of the basic concepts and topics in organizational sociology. Special emphases will be placed on the social impacts of organizations.

**SOCY 2126. World Population Problems. (3) (W)** Cross-listed as ANTH 2126. An examination of various world population "problems," such as growth, migration, fertility, and population aging, in order to learn how cultural, political, economic, and environmental factors influence and are influenced by the population structure of a given society.

**SOCY 2132. Sociology of Marriage and the Family.**

**(3)** Cross-cultural examination of family; socialization and sex roles; love, dating, and mate selection; communication; sexuality; power and decision making; parenthood; childlessness; conflict and violence; divorce, remarriage, and stepfamilies; alternate lifestyles; and future family.

**SOCY 2133. Sociology of Marriage and Family - Writing Intensive. (3) (W)**

Cross-Cultural examination of family; socialization and sex roles; love, dating, and mate selection; communication; sexuality; power and decision making; parenthood; childlessness; conflict and violence; divorce, remarriage, and stepfamilies; alternative lifestyles; and future family.

**SOCY 2161. Sociological Social Psychology. (3)**

Prerequisite: SOCY 1101 or permission of instructor. How the actual, imagined or implied presence of other people influences a person's thoughts, feelings and behavior. Socialization, self and identity, attitudes, social perception, language, and group processes.

**SOCY 2163. Sociology of Gender. (3) (W)**

Changing patterns of gender inequality; socialization and social structure as basis of gendered behavior, ideologies, and relationships. Alternative gender models and social movements as vehicles to diminishing gender inequality.

**SOCY 2171. Social Problems. (3)**

Contemporary social problems and consequences for American society.

**SOCY 3090. Topics in Sociology. (1-3)**

Prerequisite: SOCY 1101. Examination of specialized sociological topics. *May be repeated for credit with change of topic.*

**SOCY 3091. Topics in Sociology - Writing Intensive. (1-3) (W)**

Prerequisite: SOCY 1101. Examination of specialized sociological topics. *May be repeated for credit with change of topic.*

**SOCY 3110. American Minority Groups. (3)**

Prerequisite: SOCY 1101. Relations between dominant and minority groups; the establishment, maintenance, and decline of dominance involving racial, ethnic, and religious minorities.

**SOCY 3132. Sociology of Sport. (3)**

Prerequisite: SOCY 1101 or permission of instructor. Dynamics and emergence of sport; reciprocal influence between sport and society; values, norms, and roles in sports.

**SOCY 3143. Social Movements. (3)**

Prerequisite: SOCY 1101. Analysis of collective behavior, ideology, development, and organizations of movements seeking or resisting change.

**SOCY 3153. Sociological Theory. (3)** Cross-listed as SOCY 3753. Prerequisite: SOCY 1101. Origins and evolution of fundamental sociological concepts and theories. Not open to students who have credit for SOCY 3154.

**SOCY 3154. Sociological Theory - Writing Intensive. (3) (W)**

Prerequisite: SOCY 1101. Origins and evolution of fundamental sociological concepts and theories. Not open to students who have credit for SOCY 3153.

**SOCY 3161. Socialization and Society. (3)**

Prerequisite: SOCY 1101. Analysis and process of socialization, social interaction, and sociocultural dimension of personality.

**SOCY 3173. Criminology. (3)**

Prerequisite: SOCY 1101. Nature and historical development of crime and political-economic organization of crime, criminal law, and theories of crime causation.

**SOCY 3175. Crowds, Riots, and Disasters. (3)**

Prerequisite: SOCY 1101. Collective behavior in everyday life; crowds, rumors, fads, fashion; collective behavior that disrupts social order; riots and responses to disaster; response of individuals, organizations and communities to natural disasters, e.g., floods, hurricanes, tornadoes, and earthquakes.

**SOCY 3210. Black Families in the Diaspora. (3)**

Cross-listed as AFRS 3210 and LTAM 3110. This course is designed to acquaint students with historical and contemporary experiences of peoples of African descent in the Caribbean and Latin American countries with specific emphasis on family structure and family relationships. Includes discussion of theories, history, impact of globalization on family structure, roles of women and identity, socioeconomic status and mobility, slavery, colonialism, and capitalism. The course is designed to provide students with a better understanding of the comparative relationships and links between family structures and common life experiences among peoples of African descent in different parts of the world, with specific emphasis on the Caribbean and Latin American regions.

**SOCY 3250. Political Sociology. (3)**

Cross-listed as POLS 3250. Prerequisite: SOCY 1101. Sociological analysis of the relationship between social, economic and political systems. Focuses on power relations in society and its effects on the distribution of scarce resources. Topics covered may include: theories of power and the nation state, political participation and voting, religion and politics, the comparative welfare state, media and ideology, the global economy, war and genocide, revolutions, and social movements. Not

open to students who have credit for SOCY 3251 or POLS 3251.

**SOCY 3251. Political Sociology. (3) (O)** Cross-listed as POLS 3251. Prerequisite: SOCY 1101. Sociological analysis of the relationship between social, economic and political systems. Focuses on power relations in society and its effects on the distribution of scarce resources. Topics covered may include: theories of power and the nation state, political participation and voting, religion and politics, the comparative welfare state, media and ideology, the global economy, war and genocide, revolutions, and social movements. Not open to students who have credit for SOCY 3250 or POLS 3250.

**SOCY 3261. Human Sexuality. (3)** Prerequisite: SOCY 1101 or permission of instructor. Human sexuality research; teenage pregnancy; birth control; sex education; sexual fantasy; pornography; homosexuality and bisexuality; sexual communication; and heterosexual alternatives.

**SOCY 3267. Sociology of Dying, Death, and Bereavement. (3)** Cross-listed as GRNT 3267. Social definitions of death, process of dying, facing death across the life course, grief, bereavement, bioethical issues impacting individuals and society.

**SOCY 3753. Honors Sociological Theory. (3)** Cross-listed as SOCY 3153. Prerequisite: SOCY 1101 and acceptance into departmental honors program. Origins and evolution of fundamental sociological concepts and theories.

**SOCY 3798. Preliminary Honors Research in Sociology. (3)** Prerequisite: Acceptance into the departmental honors program and permission of department. Additional Honors hours that may be taken on a pass/no credit basis to conduct preliminary research and begin writing the Honors Thesis in Sociology. SOCY 3799 must be taken the following semester to complete and defend the Honors Thesis in Sociology.

**SOCY 3799. Honors Thesis in Sociology. (3)** Prerequisite: Acceptance into the departmental honors program; permission of department; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. The preparation and presentation of an acceptable Honors thesis or its equivalent. The final course in a required three-course sequence for Honors in Sociology. Completion of a thesis earning a passing grade meets the requirement for a 4000-level course in the major; a grade of A is required to earn honors.

**SOCY 3895. Directed Individual Study. (1-4)** Prerequisite: Permission of instructor. Supervised investigation of a sociological topic. *May be repeated for credit; up to 6 hours may be applied to the major.*

**SOCY 4090. Topics in Sociology. (1-3)** Prerequisite: SOCY 1101. Examination of specialized sociological topics (e.g., sociology of religion, Modern Japan). *May be repeated for credit.*

**SOCY 4091. Topics in Sociology - Writing Intensive. (1-3) (W)** Prerequisite: SOCY 1101. Examination of specialized sociological topics (e.g., sociology of religion, Modern Japan). *May be repeated for credit.*

**SOCY 4110. Sociology of Aging. (3)** Cross-listed as GRNT 4110. Prerequisite: SOCY 1101 or permission of instructor. Study of the changing characteristics, aspirations, and needs of older adults and their impact upon such institutions as the family, work, the economy, politics, education, and healthcare; emphasis on sociological theories of aging, contemporary research, and the analysis of specific aging policies and programs.

**SOCY 4111. Social Inequality. (3)** Prerequisite: SOCY 1101. Distribution of power, privilege, and prestige; correlates and consequences of inequality; national and international comparisons.

**SOCY 4112. Sociology of Work. (3)** Prerequisite: SOCY 1101 or permission of instructor. The emergence of post-industrial society and technological change in the workplace; analysis of their impacts on organizations, workers, family, and community.

**SOCY 4115. Organizational Sociology. (3)** Prerequisite: SOCY 1101 or permission of instructor. The sociological analysis of formal organizations. Organizational structures, practices, internal processes, and their relationships with the external environment. Organizations as rational instruments designed to achieve predetermined goals, as human groups where spontaneous social interactions take place, and as organisms situated in broader social, cultural, and economic contexts.

**SOCY 4116. Sociology of Economic Life. (3)** Prerequisite: SOCY 1101. Adopts a sociological view to examine economic life. Topics include: industry and market structures, social networks, and inter-organizational relationships.

**SOCY 4121. Globalization and Development. (3)** Prerequisite: SOCY 1101. Introduces different views and arguments on the nature, impact, and trend of globalization in sociology and other related fields. Explores broad implications of globalization and how

the globalization processes transform our world economically, politically, socially, and culturally.

**SOCY 4124. Sociology of the Community. (3)** Prerequisite: SOCY 1101. Concepts and methods of community analysis of planned and unplanned community change.

**SOCY 4125. Urban Sociology. (3)** Prerequisite: SOCY 1101 or permission of instructor. Cross-cultural analysis of urban development, social structure, ecology, demographic composition, and social problems.

**SOCY 4130. Sociology of Health and Illness. (3)** Cross-listed as SOCY 4730. Prerequisite: SOCY 1101 or permission of instructor. The cultural and structural influences on the definition of health and illness; models of illness behaviors; health demography and epidemiology; social influences on the delivery of healthcare; ethical issues surrounding health and illness; and the development of relevant social policy.

**SOCY 4131. Family Policy. (3)** Prerequisite: SOCY 1101 or permission of instructor. Critical analysis of four aspects of family policy: the historical and cultural factors that have resulted in specific policies affecting the family; the specification of contemporary family policy at both the national and state level; the intended and actual application of existing family policy; and the implications and impact of policies as they are interpreted and implemented.

**SOCY 4134. Families and Aging. (3)** Cross-listed as GRNT 4134 and SOCY 4734. Prerequisite: SOCY 1101 or permission of instructor. Theories explaining the formation and functioning of American families with emphasis on the impact of the aging of society. Examination of the current demographic trends and expectations of multigenerational families, as well as the future demands and modifications.

**SOCY 4135. Sociology of Education. (3)** Prerequisite: SOCY 1101 or permission of instructor. Educational institution; the school class as a social system; the school as a social environment and a complex organization.

**SOCY 4140. Social Networks. (3)** Prerequisite: SOCY 1011. Introduces the structuralist theoretical perspective and basic methods for the analysis of social networks. Topics include: social differentiation and the integration of society; small world networks; voluntary associations; culture; race relations; gender inequality; weak ties and social capital.

**SOCY 4145. Sociology of Religion. (3)** Prerequisite: SOCY 1011. What is religion? How can we study

religion scientifically? Rational choice, social network, ecological, and evolutionary approaches examined. Topics include: variation in religious belief and practice, secularization, and characteristics of churches, sects, and cults.

**SOCY 4150. Older Individual and Society. (3)** Cross-listed as GRNT 4150. Study of the social and cultural context on the lives of aging individuals in American society. Will include a focus on expectations, social interactions, and psychological well-being in the context of retirement, caregiving, and health.

**SOCY 4153. Contemporary Sociological Theory. (3)** Prerequisite: SOCY 1101. Elements and process of theory construction; contemporary social theories, such as theories of social order and causation, power, class structure, and inequality; group process theories; post-modern theories. Not open to students who have credit for SOCY 4154.

**SOCY 4154. Contemporary Sociological Theory – Writing Intensive. (3) (W)** Prerequisite: SOCY 1101. Elements and process of theory construction; contemporary social theories, such as theories of social order and causation, power, class structure, and inequality; group process theories; post-modern theories. Not open to students who have credit for SOCY 4153.

**SOCY 4155. Sociological Research Methods. (4) (W)** Cross-listed as SOCY 4755. Prerequisite: SOCY 1101. Formulation of research problems; research designs; social measurement; sampling; collection, analysis, and interpretation of data. Three hours of lecture/discussion and completion of weekly laboratory units.

**SOCY 4155L. Sociological Research Methods Laboratory. (0)** Cross-listed as SOCY 4755L. Corequisite: SOCY 4155. Required weekly laboratory session for Sociological Research Methods.

**SOCY 4156. Quantitative Analysis. (4)** Cross-listed as SOCY 4756. Prerequisites: SOCY 1101; and STAT 1220, STAT 1221, STAT 1222, or equivalent statistics course. Concepts and procedures of sociological analysis; data processing; measurement theory; and quantitative models of analysis. Three hours of lecture/discussion and completion of weekly laboratory units.

**SOCY 4156L. Quantitative Analysis Laboratory. (0)** Cross-listed as SOCY 4756L. Corequisite: SOCY 4156. Required weekly laboratory session for Quantitative Analysis.

**SOCY 4160. Evolution and Gender. (3)** The implications of evolution for gender and gender differences and the social patterns and trends that result. These patterns and trends include gender differences in mate selection, sexual behavior, aggression, emotional experience, and communication styles, as well as differences in parental investment by gender. Also examines how evolutionary theory can illuminate the origins of patriarchy.

**SOCY 4165. Sociology of Women. (3) (W)** Cross-listed as WGST 4165. Prerequisite: SOCY 1101 or WGST 1101 and Junior standing or permission of instructor. Examines how the social world of women is influenced by their race, ethnicity, and class. Attention is given to changing roles of women in public and private spheres and to the role conflict that arises as women attempt to meet obligation in families, communities, and the workplace.

**SOCY 4168. Sociology of Mental Health and Illness. (3) (W)** Prerequisite: SOCY 1101 or permission of instructor. Mental health and illness in its social context; relationship between social structures and mental health/disorder. How social factors affect the definition and treatment of mental disorders; the effects of demographic variables on mental health and illness; the role of social support and stress; the organization, delivery and evaluation of mental healthcare services; and considerations of mental healthcare policy.

**SOCY 4172. Sociology of Deviant Behavior. (3)** Prerequisite: SOCY 1101 or permission of instructor. Social definition of deviance; examination of the social processes producing unusual, non-standard, and condemned behavior; and social responses to deviant behavior.

**SOCY 4173. Sociology of Deviant Behavior - Writing Intensive. (3) (W)** Cross-listed as SOCY 4773. Prerequisite: SOCY 1101 or permission of instructor. Same as SOCY 4172, but a Writing Intensive (W) course. Social definition of deviance; examination of the social processes producing unusual, non-standard, and condemned behavior; and social responses to deviant behavior.

**SOCY 4263. Sociology of Small Groups. (3) (O, W)** Cross-listed as SOCY 4763. Prerequisite: SOCY 1101 or permission of instructor. Systematic analysis and application of theoretical and empirical research pertaining to small groups.

**SOCY 4265. Social Psychology of Law. (3) (W)** Cross-listed as SOCY 4765. Prerequisite: SOCY 1101 or permission of instructor. Systematic analysis and

application of theoretical and empirical research pertaining to the social psychological study of law.

**SOCY 4267. Sociology of the Internet. (3)** Scientific study of the Internet using sociological theory to provide a conceptual approach with which to understand the digital society in which we live and interact, while enhancing student understanding of the tools and ideas with which to analyze interactions within our digital society.

**SOCY 4480. Internship in Sociology. (3-6)** Prerequisite: Permission of department. Research and/or in-service training for selected students in cooperating community organizations. Specified content based upon a contract between student, department, and community organization. *May be repeated for credit up to 6 credits. Graded on a Pass/No Credit basis.*

**SOCY 4482. Undergraduate Teaching Internship in Sociology. (3-9)** Prerequisite: Permission of department. Students work with Sociology faculty member as a teaching intern. Students must have previously taken the course for which they intern. Specified content based upon a contract between student, department, and supervising Sociology faculty member. *May be repeated for credit up to nine semester hours, with only three semester hours fulfilling SOCY 3000/4000 level elective credit. Graded on a Pass/No Credit basis.*

**SOCY 4730. Honors Sociology of Health and Illness. (3)** Cross-listed as SOCY 4130. Prerequisite: SOCY 1101 or permission of instructor. The cultural and structural influences on the definition of health and illness; models of illness behaviors; health demography and epidemiology; social influences on the delivery of healthcare; ethical issues surrounding health and illness; and the development of relevant social policy.

**SOCY 4734. Honors Families and Aging. (3)** Cross-listed as SOCY 4134 and GRNT 4134. Prerequisites: SOCY 1101 and acceptance into departmental honors program. Theories explaining the formation and functioning of American families with emphasis on the impact of the aging of society. Examination of the current demographic trends and expectations of multigenerational families, as well as the future demands and modifications.

**SOCY 4755. Honors Sociological Research Methods. (4) (W)** Cross-listed as SOCY 4155. Prerequisites: SOCY 1101 and acceptance into departmental honors program. Formulation of research problems; research designs; social measurement; sampling; collection, analysis, and interpretation of data. Three hours of

lecture/discussion and completion of weekly laboratory units.

**SOCY 4755L. Honors Sociological Research Methods Laboratory. (0)** Cross-listed as SOCY 4155L. Corequisites: SOCY 4755 and acceptance into departmental honors program. Required weekly laboratory session for Sociological Research Methods.

**SOCY 4756. Honors Quantitative Analysis. (4)** Cross-listed as SOCY 4156. Prerequisites: SOCY 1101 and acceptance into departmental honors program. Concepts and procedures of sociological analysis; data processing; measurement theory; and quantitative models of analysis. Three hours of lecture/discussion and completion of weekly laboratory units.

**SOCY 4756L. Honors Quantitative Analysis Laboratory. (0)** Cross-listed as SOCY 4156L. Corequisites: SOCY 4756 and acceptance into departmental honors program. Required weekly laboratory session for Quantitative Analysis.

**SOCY 4763. Honors Sociology of Small Groups. (3) (O, W)** Cross-listed as SOCY 4263. Prerequisites: SOCY 1101 and acceptance in departmental honors program. Systematic analysis and application of theoretical and empirical research pertaining to small groups.

**SOCY 4765. Honors Social Psychology of Law. (3) (W)** Cross-listed as SOCY 4265. Prerequisite: SOCY 1101 or permission of instructor. Systematic analysis and application of theoretical and empirical research pertaining to the social psychological study of law.

**SOCY 4773. Honors Sociology of Deviant Behavior – Writing Intensive. (3) (W)** Cross-listed with SOCY 4173. Prerequisites: SOCY 1101 and acceptance into the departmental honors program. Social definition of deviance; examination of the social processes producing unusual, non-standard, and condemned behavior; and social responses to deviant behavior.

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## Social Work (SOWK)

**SOWK 1101. The Field of Social Work. (3)** Introduction to the social work profession, including its history, values, and areas of professional practice.

**SOWK 2182. Human Behavior in the Social Environment I. (3)** Prerequisites: BIOL 1110, BIOL 1101L, SOCY 1101, and PSYC 1101. Pre- or corequisite: SOWK 1101. Human development within the biological, psychological, and social structure as it occurs throughout the lifespan.

**SOWK 2183. Human Behavior in the Social**

**Environment II. (3)** Prerequisite: SOWK 2182. The foundational framework for understanding human interaction between individuals, families, communities, and larger social systems.

**SOWK 3090. Topics in Social Work. (3)** Specialized topics in social work. *May be repeated for credit as topics vary.*

**SOWK 3120. Diversity and Populations-at-Risk. (3)** Prerequisite: Upper Division standing. Analysis of issues of race, ethnicity, gender, sexual orientation, social class, age, and ability within social work practice.

**SOWK 3133. Community Engagement and Outreach. (3)** Prerequisite: Upper Division standing. Corequisites: SOWK 3120 and SOWK 3199. Students engage in experiential learning in order to effectively prepare for social work practice with vulnerable populations, and specifically to enhance their ability to build relationships and facilitate access.

**SOWK 3181. Practice Methods I. (3)** Prerequisite: Upper Division standing. Corequisite: SOWK 3900. Development of competencies within generalist social work practice methods with an emphasis on working with individuals.

**SOWK 3182. Practice Methods II. (3)** Prerequisites: Upper Division standing and SOWK 3181. Corequisite: SOWK 3482. Development of competencies within generalist social work practice methods with an emphasis on working with families and groups.

**SOWK 3184. Practice Methods III. (3)** Prerequisite: Upper Division standing, SOWK 3181. Corequisite: SOWK 3484. Development of competencies within generalist social work practice methods with an emphasis on working with communities and large systems.

**SOWK 3199. Professional Behaviors, Ethics, and Communication. (3)** Prerequisite: Upper Division standing. Corequisites: SOWK 3120 and SOWK 3133. Issues related to professional values, professional identity, continual learning, and best practices for social workers in a variety of practice situations.

**SOWK 3201. Foundations of Social Welfare. (3) (W)** Prerequisite: Upper Division standing. History of and current trends in social welfare, and values and conflicts that influence social welfare programming.

**SOWK 3202. Social Welfare Policy. (3)** Prerequisites: Upper Division standing and SOWK 3201. Critical analysis of social welfare policy, including policy development and reform processes and outcomes.

**SOWK 3482. Field Practicum I. (5) (O)**  
Prerequisites: Upper Division standing and SOWK 3181. Corequisite: SOWK 3182. Students complete an approved supervised field experience 16 hours per week. Students concurrently participate in a field seminar to reinforce and enhance their field experience.

**SOWK 3484. Field Practicum II. (6) (O)**  
Prerequisites: Upper Division standing, SOWK 3182, and SOWK 3482. Corequisite: SOWK 3184. Students complete an approved supervised field experience and concurrently participate in a field seminar to reinforce and enhance their field experiences.

**SOWK 3895. Directed Individual Study. (1-4)**  
Prerequisite: Permission of department. Supervised investigation of a special problem or area of practice. *May be repeated for credit.*

**SOWK 3900. Social Work Research I. (3)**  
Prerequisite: Upper Division standing. Introduction to research methods and skills used in social work.

**SOWK 3988. Social Work Research II. (3)**  
Prerequisites: Upper Division standing and SOWK 3900. Corequisites: SOWK 3182 and SOWK 3482. Quantitative and qualitative research and the understanding of scientific and ethical approaches to building knowledge.

**SOWK 4100. Ethnicity and Aging. (3)** Prerequisite: permission of instructor. Examines the changing characteristics, goals, and needs of older African Americans, Asian Americans, Native Americans, and Hispanics. Provides a diversity of perspectives from which to view the relationship of ethnicity to aging including the impact of the family, work, education, economy, illness, behavior, and healthcare.

**SOWK 4101. Social Work Practice with Older Adults. (3)** Prerequisite: Permission of department. Social work practice with older adults with an emphasis on assessment, intervention planning, and implementation.

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## Spanish (SPAN)

**SPAN 1201. Elementary Spanish I. (4)** For students with limited or no previous experience in Spanish. First course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in Spanish. 50% of the course is conducted online.

**SPAN 1202. Elementary Spanish II. (4)**  
Prerequisite: SPAN 1201 or equivalent. Second

course in a two-course sequence to develop competence in culture, speaking and writing, listening and reading comprehension in Spanish. 50% of the course is conducted online.

*Note: All 2000-level courses except for SPAN 2009 fulfill the language requirement of most non-majors. Students should check with an advisor in their own major to determine which third semester course is preferred by their major. SPAN 2050 counts if it is offered in Spanish for 3 credits.*

**SPAN 2009. Hispanic Literature in English Translation. (3) (W)** Studies of Spanish or Spanish American literature in translation. Not applicable toward Spanish major. *May be repeated for credit with change of topic.* Course conducted in English.

**SPAN 2050. Topics in Spanish. (1-3)** Prerequisite: SPAN 1202 or permission of department. Study of a particular facet of the Spanish language, culture, or literature. *May be repeated for credit with change of topic.*

**SPAN 2105. Spanish Communication Skills Development I. (3) (O)** Prerequisite: SPAN 1202. Corequisite: SPAN 2201 is recommended. Fulfills the 2000-level language requirement for non-Spanish majors. Continued practice in all four skills: speaking, listening, reading, and writing.

**SPAN 2106. Spanish Communication Skills Development II. (3) (O)** Prerequisite: SPAN 2201 or permission of department. Corequisite: SPAN 2202 is recommended. Continued practice in all four skills: speaking, listening, reading, and writing.

**SPAN 2200. Spanish for Reading Knowledge. (3)** Prerequisite: SPAN 1202 or equivalent. Review of Spanish grammar with emphasis on developing reading skills. Taught primarily in English. Does not count for major or minor credit.

**SPAN 2201. Intermediate Spanish I. (3)** Prerequisite: SPAN 1202 or permission of department. Corequisite: SPAN 2105 is recommended. Continued training in grammar. Intensive practice in reading, writing, and speaking.

**SPAN 2202. Intermediate Spanish II. (3)** Prerequisite: SPAN 2201 or permission of department; SPAN 2105 is also recommended. Corequisite: SPAN 2106 is recommended. Builds on skills acquired in the first semester intermediate level. Introduces advanced grammatical concepts.

**SPAN 2210. Introduction to Spanish for Commerce. (3)** Prerequisite: SPAN 1202 or permission of

department. Fundamentals of commercial Spanish, study of the language, protocol, and cultural environment of the Spanish-speaking business world. Basic business vocabulary, cultural concepts, and grammatical review through situational practice. Fulfills the 2000-level language requirement for non-Spanish majors.

**SPAN 2211. Spanish for Criminal Justice Professionals. (3)** Prerequisite: SPAN 1202 or permission of department. Fulfills the 2000-level language requirement for non-Spanish majors.

**SPAN 2212. Spanish for Healthcare Professionals. (3)** Prerequisite: SPAN 1202 or permission of department. Fulfills the 2000-level language requirement for non-Spanish majors.

**SPAN 3009. Masterpieces of Hispanic Literature in English. (3) (W)** Prerequisites: sophomore standing and UWRT 1102, or permission of instructor. Advanced studies of Spanish or Spanish-American literature in English translation. Knowledge of Spanish not required. Not applicable toward a Spanish major or minor. *May be repeated for credit with change of topic.* Course conducted in English.

**SPAN 3019. Hispanic Women Writers in English Translation. (3) (W)** Cross-listed as LTAM 3319 and WGST 3019. Prerequisite: UWRT 1102 and sophomore standing, or permission of instructor. Examination of prose and poetry by women writers from Spain and the Americas to understand women's voices and other cultures. Conducted in English. Knowledge of Spanish not required. Not applicable toward Spanish major or minor.

**SPAN 3029. Cultural Dimension of Doing Business with Spanish-Speaking Countries. (3)** Prerequisite: UWRT 1102 or UWRT 1103. Development of cultural awareness for conducting business with Spanish-speaking countries and U.S. Hispanic communities. Conducted in English. Not applicable toward Spanish major or minor.

**SPAN 3030. Business and Culture in the Hispanic Caribbean Region. (3)** Prerequisite: UWRT 1102 or UWRT 1103. Development of intercultural understanding and communication skills for conducting business in the greater Hispanic Caribbean region. Conducted in English. Not applicable toward Spanish major or minor.

**SPAN 3050. Topics in Spanish. (1-3)** Prerequisite: SPAN 2202 or equivalent. Study of a particular facet of the Spanish language, culture, or literature at the 3000 level not covered by other SPAN courses. *May be repeated for credit with change of topic.*

**SPAN 3160. Studies in Hispanic Film. (3)** The study of Spanish Peninsular, Spanish American, or Hispanic/Latino films. Not applicable toward Spanish major or minor. Course conducted in English. *May be repeated for credit with change of topic.*

**SPAN 3201. Advanced Spanish Grammar and Composition I. (3)** Prerequisite: SPAN 2202 or permission of department. Advanced studies in Spanish grammar, composition, syntax, and rhetoric. Native and heritage speakers of Spanish may take SPAN 3203 in lieu of SPAN 3201 and SPAN 3202, but they must also take one additional 3000- or 4000-level Spanish course.

**SPAN 3202. Advanced Spanish Conversation and Composition. (3) (O)** Prerequisite: SPAN 2202 or permission of department. Study and practice of formal, academic presentations and reports both written and oral. Introduction to concepts in elocution and phonetics. Native and heritage speakers of Spanish may take SPAN 3203 in lieu of SPAN 3201 and SPAN 3202, but they must also take one additional 3000- or 4000-level Spanish course.

**SPAN 3203. Advanced Writing and Rhetoric for Native Speakers. (3) (O)** Prerequisites: SPAN 2202 or permission of department; and native speaker of Spanish, as determined by the student's advisor. Continued studies in Spanish grammar, composition, syntax, and rhetoric for academic purposes. This course may be taken in lieu of SPAN 3201 and SPAN 3202, plus one additional 3000- or 4000-level Spanish course.

**SPAN 3208. Introduction to Literary Analysis. (3)** Pre- or corequisite: SPAN 3201, SPAN 3202, or SPAN 3203 or permission of department. Continued work with vocabulary building and reading skills. Introduction to the theory and practice of reading literary texts in Spanish.

**SPAN 3209. Spanish Civilization and Culture. (3)** Pre- or corequisite: SPAN 3201, SPAN 3202, SPAN 3203 or permission of department. Introduction to the cultural heritage of peninsular Spain.

**SPAN 3210. Spanish American Civilization and Culture. (3)** Pre- or corequisite: SPAN 3201, SPAN 3202, SPAN 3203 or permission of department. Introduction to the cultural heritage of Spanish America.

**SPAN 3211. Introduction to Spanish Peninsular Literature. (3)** Prerequisites: SPAN 3201, SPAN 3202, or SPAN 3203, or permission of department. Pre- or corequisite: SPAN 3208. Introduction to the

literary heritage of Spain. Reading and analysis of representative works.

**SPAN 3212. Introduction to Spanish American Literature. (3)** Prerequisites: SPAN 3201, SPAN 3202, or SPAN 3203, or permission of department. Pre- or corequisite: SPAN 3208. Introduction to the literary heritage of Spanish America. Reading and analysis of representative works.

**SPAN 3220. Spanish for Business and International Trade. (3)** Prerequisites: SPAN 3201, SPAN 3202, or SPAN 3203, or permission of department. Introduction to spoken and written language of the Spanish-speaking business world. Acquisition of and practice with general commercial terminology used in Spanish for such functional business areas as economics, management, marketing, finance, and import-export.

**SPAN 3800. Directed Individual Study. (1-3)** Prerequisite: Permission of department; normally open only to Spanish majors and minors. Individual work on a selected area of study. To be arranged with the instructor during the preceding semester. By special permission only. *May be repeated for credit.*

**SPAN 4050. Selected Topics in Spanish. (1-3)** Prerequisites: two SPAN 3000-level courses or permission of department. Consideration of a predetermined topic not covered by other SPAN courses. *May be repeated for credit with change of topic.*

**SPAN 4120. Advanced Business Spanish I. (3)** Prerequisites: SPAN 3201, SPAN 3202, or SPAN 3203; and SPAN 3220; or permission of department. Advanced studies in Business Spanish, intensive intercultural communication practice in speaking, listening comprehension, reading, writing, and translation/interpretation in functional business areas such as economics, management, banking, accounting, real estate, office systems, and human resources.

**SPAN 4121. Advanced Business Spanish II. (3)** Prerequisites: SPAN 3201, SPAN 3202, or SPAN 3203; and SPAN 3220; or permission of department. Advanced studies in Business Spanish, intensive intercultural communication practice in speaking, listening comprehension, reading, writing, and translation in functional business areas such as goods and services, marketing, finance, and import-export.

**SPAN 4122. Studies in Advanced Business Spanish. (3)** Cross-listed as LTAM 4322. Prerequisites: SPAN 3201, SPAN 3202, SPAN 3203; and SPAN 3220; or permission of department. Advanced studies in special topics in Business Spanish

(e.g., Tourism in Spain and Latin America, Free Trade in the Americas [NAFTA/TLCAN, Mercosur, The Andean Pact, CAFTA-DR], Socioeconomic Issues in the Greater Caribbean, Business and Technology in Latin America and Spain). *May be repeated for credit with change of topic.*

**SPAN 4201. Nineteenth-Century Spanish Literature. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Survey of peninsular literature from Costumbrismo through the Generation of 1898.

**SPAN 4202. Twentieth Century Spanish Literature. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Treatment of major literary developments from the Generation of 1898 to present day.

**SPAN 4205. Novel of the Golden Age. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. *Lazarillo* through *El Criticón*.

**SPAN 4206. Theater of the Golden Age. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Study of works of the leading dramatists of the period.

**SPAN 4210. Studies in Spanish American Poetry. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Studies of colonial, post-independence, 20th-century, and contemporary Spanish American poetry. *May be repeated for credit with change of topic.*

**SPAN 4211. Studies in Spanish American Prose Fiction. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Studies of colonial, post-independence, 20th-century, and contemporary Spanish American prose fiction. *May be repeated for credit with change of topic.*

**SPAN 4212. Studies in Spanish American Theater. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Studies of colonial, post-independence, 20th-century, and contemporary Spanish American theater. *May be repeated for credit with change of topic.*

**SPAN 4213. Cervantes. (3)** Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Study of Cervantes' masterpiece, *Don Quijote*, and/or other representative works.

**SPAN 4214. Studies in Hispanic Children's Literature. (3)** Cross-listed as LTAM 4314. Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Literary works in Spanish written for

children. *May be repeated for credit with change of topic.*

**SPAN 4215. Studies in Regional Literature of the Americas. (3)** Cross-listed as LTAM 4315. Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Studies of Mexican, Central American, Caribbean, Andean, Amazonian, or Southern Cone literature. Readings from representative works. Works from non-Spanish-speaking areas read in Spanish translation. *May be repeated for credit with change of topic.*

**SPAN 4216. Social, Political, Cultural, Economic Issues in Hispanic Literature. (3)** Cross-listed as LTAM 4316. Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Contextual issues surrounding Hispanic literature.

**SPAN 4217. Topics in Hispanic Culture and Civilization. (3)** Cross-listed as LTAM 4217. Prerequisite: SPAN 3211 or SPAN 3212, or permission of department. Various topics involving the fine arts: music, dance, art, film. *May be repeated for credit with change of topic.* Applicable toward Spanish major or minor only when taught in Spanish.

**SPAN 4231. Spanish Phonetics. (3)** Prerequisite: Two SPAN 3000-level courses or permission of department. Detailed analysis, description, and production of Spanish sounds. Practical exercises with phonetic transcription and recordings.

**SPAN 4232. Spanish Linguistics. (3)** Prerequisites: Two SPAN 3000-level courses. Introduction to different fields of Spanish linguistics studies: sociolinguistics, synchronic and diachronic perspectives of phonetics, morphology, syntax, and semantics.

**SPAN 4233. History of the Spanish Language. (3)** Prerequisites: Two SPAN 3000-level courses. Strongly recommended to have completed SPAN 4232. The evolution of Spanish from Latin and the effects of this evolution on Spanish phonetics, morphology, syntax, and semantics.

**SPAN 4400. Honor's Thesis. (3)** Prerequisite: 21 hours of SPAN 3000- or 4000-level courses completed with 3.5 GPA or above; and approval of a proposal through the Honors College Application to Candidacy process the semester prior to taking the course. Directed research and writing of an Honor's thesis.

**SPAN 4409. Service Learning in the Hispanic Community. (3)** Prerequisite: Two SPAN 3000-level courses and permission of instructor. Service is assigned to a Hispanic Community Service agency.

Also includes academic projects such as journals, reports, research papers, and final oral presentations.

**SPAN 4410. Professional Internship in Spanish. (1-6)** Prerequisite: Honors status or permission of department. Faculty-supervised field and/or research experience in a cooperating profession (e.g., business) or community organization within the Hispanic Community. Contents of internship based upon a contractual agreement among the student, department, and business or community organization. *Graded on a Pass/No Credit basis.*

**SPAN 4800. Directed Individual Study. (1-3)** Prerequisite: Permission of department; normally open only to Spanish majors and minors. Individual work on a selected area of study. To be arranged with the instructor, generally during the preceding semester. *May be repeated for credit.*

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## Special Education (SPED)

**SPED 2100. Introduction to Students with Special Needs. (3)** An introduction for preservice teachers in both general and special education to learners with disabilities as well as those with academic gifts. This required teacher education course assists future teachers in understanding the nature of disabilities and special gifts, their impact on learning and other life outcomes, and appropriate educational programming. Since an increasing number of learners with special needs are served in the general education classroom, all teachers have a responsibility to provide effective educational programs for all students. This course, along with EDUC 1100 or EDUC 2100, contributes to preservice teachers' understanding of learners in American schools.

**SPED 3100. Introduction to General Curriculum for Students with Special Needs. (3)** Prerequisites: Admission to Teacher Education, admission to Special Education Program, and SPED 2100. Examines legislation and litigation that govern and/or influence services for individuals with disabilities. Scrutinizes the IEP process and investigates IEP objectives that reflect the general curriculum standards. Examines one's personal philosophy of education, which reflects the diversity of students with disabilities. Identifies services, networks, organizations, and publications that serve or are relevant to individuals with disabilities. Identifies and critiques instructional implications of published research.

**SPED 3173. Assessment in Special Education. (3) (W)** Prerequisite: Admission to Special Education Program. An overview of the principles and practice of educational problem solving with an emphasis on formal/standardized assessment, including curriculum-

based assessment and curriculum-based measurement; special education eligibility; linkages between assessment and instruction; and concepts in educational assessment of students with exceptional learning needs (ELN). Topical paper required.

**SPED 3175. Instructional Planning in Special Education. (3)** Prerequisite: Admission to Teacher Education; admission to Special Education Program. This introductory course addresses strategies for the development, implementation, and monitoring of Individualized Education Programs (IEPs) and related instructional planning for P-12 students with disabilities within the general curriculum (high incidence disabilities) or adapted curriculum (low incidence disabilities). Through this course, students are expected to demonstrate proficiency in using the general education curriculum to develop appropriate IEPs and lesson plans for instruction.

**SPED 3210. Enhancing the Social-Emotional Development of Young Children in Inclusive Settings. (3)** Prerequisites: CHFD major or minor with a GPA of at least 2.5 overall and 2.75 in the major, CHFD 2111, CHFD 2113, and CHFD 2412. The social-emotional development of young children (infants, toddlers, and preschoolers) in inclusive early childhood settings. Typical and atypical social-emotional development of young children, the effects of potential risk factors on social-emotional development, and research-based practices to support social and emotional growth are explored. Students learn how to conduct functional behavior assessments, prevent and respond to challenging behaviors, and build social competence in young children in a variety of early childhood settings. 10 hours of observation.

**SPED 3800. Individual Study in Special Education. (1-6)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; and permission of the student's advisor. Independent study under the supervision of an appropriate faculty member. *May be repeated for credit.*

**SPED 4000. Topics in Special Education. (1-6)** Prerequisites: Admission to Teacher Education and admission to Special Education Program. May include classroom and/or clinical experiences in the content area. *May be repeated for credit with change of topic and permission of department.*

**SPED 4111. Issues in Early Intervention for Young Children with Disabilities. (3)** Prerequisites: Completion of CHFD 2000-level courses with the exception of students who articulate with an AA or AAS degree and are required to take CHFD 2111; and CHFD major or minor with GPA of at least 2.5 overall and 2.75 in the major. Explores issues and evidence-

based practices for young children with disabilities and their families in home, school, and community settings.

**SPED 4112. Authentic Approaches to the Assessment of Young Children with Disabilities: Birth-Kindergarten. (3)** Prerequisites: Admission to Teacher Education; GPA of at least 2.5 overall and 2.75 in the major; and SPED 4111. Develops competence in evaluation, design, implementation, and interpretation of culturally appropriate, interdisciplinary assessment approaches within the context of the young child's natural environments and in partnership with families that lead to appropriate intervention plans for children with disabilities. A field-based clinical assignment of approximately 20 hours is required.

**SPED 4170. Special Education: Consultation and Collaboration. (3) (W)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; SPED 3173; SPED 3175. Provides students an opportunity to develop their knowledge base and expertise in consultation and collaboration with parents, General Education teachers, paraprofessionals, related service personnel, and/or human service personnel. This knowledge base includes the development of effective communication skills, understanding the influence of cultural diversity when working with families, professional development goal setting, and effective supervision of paraeducators. Literature case required.

**SPED 4210. Developmental Interventions for Young Children with Disabilities: Birth through Kindergarten. (3)** Prerequisites: Admission to Teacher Education, GPA of at least 2.5 overall and 2.75 in the major, SPED 4111, and SPED 4112. Developing, facilitating, and evaluating incidental learning, play, and routines-based interventions with young children with disabilities and their families. A field-based clinical assignment of approximately 20 hours is required.

**SPED 4270. Classroom Management. (3)** Prerequisite: Admission to Teacher Education; admission to Special Education Program; SPED 3100; and SPED 3175. Equips students with the knowledge and skills of applied behavior analysis (ABA) as an approach for programming effective interventions for children and youths with disabilities. Focuses specifically on "positive behavior support" (PBS), a research-validated approach to interventions designed to prevent problem behavior, encourage environmental management, and promote students' positive and appropriate behavior. Prepares students to conduct a functional behavioral assessment (FBA) in order to more efficiently and effectively identify the interventions to address the students' behavioral needs. The desired

outcomes of this course are for students to have a basic understanding of ABA, FBA, and PBS as well as to apply these principles in a classroom setting for students with disabilities. Clinical field experience hours required.

**SPED 4271. Systematic Instruction in the Adapted Curriculum. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; and SPED 3175. Principles and procedures used to develop instructional support for students who need life skills and adaptations to general curriculum. Students are required to design and implement an instructional program. A clinical field experience is required.

**SPED 4272. Teaching Mathematics to Learners with Special Needs. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100, and SPED 3175. Provides students with effective teaching strategies and materials in math for learners with special needs for teacher licensure in Special Education: General Curriculum (NCDPI). A 12-hour field-based clinical experience is a required component of the course. Assessment and application of instructional techniques are included.

**SPED 4274. General Curriculum Access and Adaptations. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; and SPED 3175. Strategies for developing curricular priorities for students who need adaptations to the general curriculum including ways to link to state standards in reading, math, writing, science, and other content areas. This is a clinical intensive course requiring 12 hours classroom experience.

**SPED 4275. Teaching Reading to Elementary Learners with Special Needs. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; and SPED 3175. Effective prevention and intervention strategies for addressing the needs of elementary students with disabilities and diverse learning needs. Assessment and application of instructional strategies are included. A semester-long 10-hour field experience is a required component.

**SPED 4276. Teaching Reading to Middle and Secondary Learners with Special Needs. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; SPED 3175; and SPED 4275. Effective remedial and intervention strategies for addressing the needs of middle and secondary students with disabilities and diverse learning needs. Assessment and application of

instructional strategies are included. A 6-hour field experience is a required component.

**SPED 4277. Teaching Written Expression to Learners with Special Needs. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; and SPED 3175. Effective teaching strategies and materials in teaching written expression to learners with special needs. Assessment and application of instructional strategies are included in the course. A semester-long 12-hour field experience is a required component.

**SPED 4279. Content-Area Instruction for Students with Special Needs. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; SPED 3173; SPED 3175; SPED 4272; SPED 4275; and SPED 4277. Strategies for collaborative instruction, instructionally relevant use of computer-based technology, and strategic instruction to improve access of students with disabilities in the general curriculum with an emphasis on content-area instruction at the middle and secondary levels: English, science, social studies, and mathematics. Application of instructional strategies are included. A semester-long 10-hour field experience is a required component.

**SPED 4280. Multiple Disabilities. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; SPED 3173; SPED 3175; and SPED 4270. Describes various secondary disabling conditions that sometimes occur in conjunction with intellectual disability such as physical disabilities, sensory disabilities, and other health impairments. Assessment, instructional methods and procedures, and collaborative service delivery with related services personnel are studied. A field-based clinical assignment of approximately 12 hours is required.

**SPED 4316. Transition Planning and Service Delivery. (3)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; SPED 3100; and SPED 3175. Methods and procedures used in preparing students with disabilities for the world of work and independence are studied. A field-based clinical assignment of approximately 15 hours is required.

**SPED 4475. Student Teaching/Seminar: Special Education K-12: General Curriculum. (0) (15)** Prerequisites: Admission to Teacher Education; admission to Special Education Program; application to Student Teaching; completion of electronic portfolio Evidence 2 and Evidence 3. Student teaching is a planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a

university supervisor and a cooperating teacher. During student teaching, the student must demonstrate the competencies identified for his/her specific teaching field in an appropriate grade level setting. The student is assigned 15 weeks in a school setting. In addition, the student participates in 8-10 on-campus seminars scheduled throughout the semester.

**SPED 4476. Student Teaching/Seminar: Special Education K-12 Adapted Curriculum. (O) (15)**

Prerequisites: Admission to Teacher Education; admission to Special Education Program; application to Student Teaching; completion of electronic portfolio Evidence 2 and Evidence 3. Student teaching is a planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a university supervisor and a cooperating teacher. During student teaching, the student must demonstrate the competencies identified for his/her specific teaching field in an appropriate grade level setting. The student is assigned 15 weeks in a school setting. In addition, the student participates in 8-10 on-campus seminars scheduled throughout the semester.

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## Special & Elementary Education (SPEL)

**SPEL 3100. Introduction to Special Education and Dual Program. (3)**

Prerequisites: Admission to Teacher Education, admission to Dual Program; EDUC 1100 or EDUC 2100; and SPED 2100. Introduces students to the dual program and examines legislation and litigation that govern and/or influence services for individuals with disabilities. Scrutinizes the IEP process and investigates IEP objectives that reflect the general curriculum standards. Examines one's personal philosophy of education, which reflects the diversity of students with disabilities. Identifies services, networks, organizations, and publications that serve or are relevant to individuals with disabilities. Identifies and critiques instructional implications of published research.

**SPEL 4171. Special Education: Consultation and Collaboration in Elementary Schools. (3) (W)**

Prerequisite: Admission to Teacher Education. Provides students an opportunity to develop their knowledge base and expertise in consultation and collaboration with parents, General Education teachers, paraprofessionals, related service personnel, and/or human service personnel. This knowledge base includes the development of effective communication skills, understanding the influence of cultural diversity when working with families, professional development

goal setting, and effective supervision of paraeducators.

**SPEL 4477. Student Teaching/Seminar: Special Education General Curriculum and Elementary Education K-6 (Dual Program). (15) (O)**

A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a university supervisor and a cooperating teacher. During student teaching the student must demonstrate the competencies identified for both the Special Education and Elementary Education teaching fields in an appropriate grade level setting. The student spends approximately 35-40 hours per week in an assigned school setting. In addition, the student participates in six to eight on-campus seminars scheduled throughout the semester.

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## Statistics (STAT)

**STAT 1220. Elements of Statistics I (BUSN). (3)**

Prerequisite: MATH 1100, appropriate eligibility level of math placement, or placement by the department. Non-calculus based introduction to data summarization, discrete and continuous random variables (e.g., binomial, normal), sampling, central limit theorem, estimation, testing hypotheses, and linear regression. Applications of theory will be drawn from areas related to business. May not be taken for credit if credit has been received for STAT 1221 or STAT 1222.

**STAT 1221. Elements of Statistics I. (3)**

Prerequisite: MATH 1100, appropriate eligibility level of math placement, or placement by the department. Same topics as STAT 1220 with special emphasis on applications to the life sciences. May not be taken for credit and for a grade if credit has been received for STAT 1220 or STAT 1222.

**STAT 1222. Introduction to Statistics. (3)**

Prerequisite: MATH 1100 appropriate eligibility level of math placement, or placement by the department. Same topics as STAT 1220 with special emphasis on applications to the social and behavioral sciences. May not be taken for credit and for a grade if credit has been received for STAT 1220 or STAT 1221.

**STAT 2122. Introduction to Probability and Statistics. (3)**

Prerequisite: MATH 1242 and MATH 2120, or permission of department. A study of probability models, discrete and continuous random variables, inference about Bernoulli probability, inference about population mean, inference about population variance, the maximum likelihood principle, the minimax principle, Bayes procedures, and linear models.

**STAT 2223. Elements of Statistics II. (3)**  
Prerequisite: STAT 1220, STAT 1221, STAT 1222, or STAT 2122, or permission of department. Topics include: contingency analysis, design of experiments, more on simple linear regression, and multiple regression. Computers are used to solve some of the problems.

**STAT 3110. Applied Regression. (3) (W)**  
Prerequisite: STAT 2122, STAT 1221, STAT 1222, or STAT 2122; and MATH 1242 or MATH 2120; or permission of department. Ordinary regression models, logistic regression models, Poisson regression models.

**STAT 3122. Probability and Statistics I. (3)** Cross-listed as MATH 3122. Sample spaces, random variables, moment generating functions, some standard distributions, multivariate distributions, laws of large numbers, limit theorems.

**STAT 3123. Probability and Statistics II. (3)** Cross-listed as MATH 3123. Prerequisite: MATH 3122 or STAT 3122. Estimation, bias, consistency, efficiency, maximum likelihood estimates, sufficient statistics, testing, the power function, chi square test, Kolmogorov Smirnov test.

**STAT 3126. Applied Statistical Methods. (3)**  
Prerequisites: MATH 3123 or permission of department. Regression analysis, time series analysis, and forecasting. Survival models and their estimation.

**STAT 3128. Probability and Statistics for Engineers. (3)** Prerequisite: MATH 2241. An introduction to: probability theory; discrete and continuous random variables and their probability distributions; joint probability distributions; functions of random variables and their probability distributions; descriptive statistics; point and interval estimation; one and two sample hypothesis testing; quality control; one and two factor ANOVA; and regression. May not be taken for credit and for a grade if credit has been received for MATH 3122, STAT 2122, or STAT 3122.

**STAT 3140. Design of Experiments. (3)**  
Prerequisite: STAT 2223, STAT 3110, or permission of department. Randomization and blocking with paired comparisons, Significance tests and confidence intervals, experiments to compare  $k$  treatment means, randomized blocks and two-way factorial designs, designs with more than one blocking variable, empirical modeling, factorial designs at two levels.

**STAT 3150. Time Series Analysis. (3)** Prerequisite: STAT 2223, STAT 3110, or permission of department. Stationary time series models, ARMA processes,

modeling and forecasting with ARMA processes, ARIMA models for nonstationary time series models, spectral densities.

**STAT 3160. Applied Multivariate Analysis. (3)**  
Prerequisite: STAT 2223, STAT 3110, or permission of department. Introduction to the fundamental ideas in multivariate analysis using case studies. Descriptive, exploratory, and graphical techniques; introduction to cluster analysis, principal components, factor analysis, discriminant analysis, Hotelling  $T^2$  and other methods.

**STAT 4116. Statistical Computing. (3)** Prerequisite: STAT 3123 or permission of department. Introduction to a variety of computational techniques using various statistics software packages (S-Plus/R or SAS) and symbolic manipulation software packages. Topics include: random number generation, density estimation, and re-sampling techniques (bootstrap, jackknife) and Gibbs sample.

**STAT 4123. Applied Statistics I. (3)** Prerequisites: MATH 2164 with grade of C or above and Junior standing, or permission of department. Review of stochastic variables and probability distributions, methods of estimating a parameter, hypothesis testing, confidence intervals, contingency tables. Linear and multiple regression, time series analysis.

**STAT 4124. Applied Statistics II. (3)** Prerequisites: STAT 4123 or permission of department. Single factor analysis of variance. Multi-factor analysis of variance. Randomized complete-block designs, nested or hierarchical designs, Latin squares, factorial experiments. Design of experiments.

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## Swahili (SWAH)

**SWAH 1201. Elementary Swahili I. (4)**  
Fundamentals of the Swahili language, including speaking, listening comprehension, reading, and writing.

**SWAH 1202. Elementary Swahili II. (4)** Prerequisite: SWAH 1201 or permission of department. Fundamentals of the Farsi language, including speaking, listening comprehension, reading, and writing.

**SWAH 3051. Topics in Swahili. (1-3)** Study of Swahili language, culture, or literature. May be repeated for credit with change of topic.

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## Teaching English As A Second Language (TESL)

**TESL 4103. Methods in Teaching English as a Second Language. (3)** Prerequisite: Completion of MDSK 3151 and TESL 4204. For future teachers of English as a Second Language who wish to master a variety of approaches, methods and techniques of teaching ESL and other competencies prescribed by the state of North Carolina. Clinical hours required.

**TESL 4104. Authentic Assessment. (3)** An exploration of the variety of assessments and evaluations used specifically for English Language Learners (ELLs) in the K-12 public schools. For current and future teachers to develop multiple criteria assessment models and to master other competencies related to the assessment of ELLs within the mainstream and ESL classroom, as prescribed by the State of North Carolina. Clinical hours required.

**TESL 4204. Inclusive Classrooms for Immigrant Students. (3)** An introduction to the general issues related multicultural education and to the teaching of English Language Learners (ELLs) in diverse classroom and school contexts. Topics include: current demographics and immigration trends, legal issues, second language and identity development of immigrant students, the development of academic English, modifying course content to meet the needs of ELLs. Clinical hours required.

**TESL 4300. Second Language Development in K-12 Classrooms. (3)** An introduction to the English language as a system, with a particular focus on teaching English as a second language in K-12 public school settings. Topics include: first and second language acquisition processes; English phonology, morphology, and syntax; implications for teaching English language learners the four language skills - listening, speaking, reading, and writing; and implications for teaching in the content areas.

**TESL 4469. Advanced Seminar/Practicum in Teaching English as a Second Language. (3)** Prerequisite: Permission from the department for admission to student teaching; must be taken prior to or in conjunction with student teaching in the major. A planned sequence of experiences within a high-needs ESL school setting under the supervision of a TESL faculty member. Concepts, methods, and practices used by effective teachers of English Language Learners (ELLs) in their daily classroom routines, including systematic observation skills, interpretation of observation data, and application of research-based findings. Extensive observations and implementation

of modified lesson plans for ELLs required. Seminar topics vary.

**TESL 4600. Literacy Development for Second Language Learners. (3)** An introduction to the challenges associated with first language literacy, second language literacy, and second language development. Examinations of the interaction between language, literacy, and culture and their implications for additive models of literacy instruction in a non-native and/or heritage language in diverse K-12 settings. Clinical hours required.

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## Theatre (THEA)

**THEA 1100. Exploration of Voice and Movement. (3) (O)** Creative and effective communication of ideas through the use of the body and voice. Includes physical and vocal technique, improvisation, and group problem solving. Four contact hours.

**THEA 1140. The Theatre Experience. (3)** Explores the theatre experience through basic concepts of playmaking, from the script's meanings to director's, designers', and actors' choices. Considers how certain plays, performed in specific ways, might affect various people in the audience today. Plays from different historical periods are read, discussed, and seen onstage in the Department of Theatre season.

**THEA 1160. Creative Drama for the Classroom Teacher. (3)** Drama and theatre as tools for exploring the processes of synthesis, creativity, divergent thinking, and experiential and authentic learning.

**THEA 1201. Theatre Collaboration. (3) (SL)** Prerequisite: THEA 1140. The theoretical knowledge of the first required course for majors, Theatre Experience, with a practical application. Students participate in the collaborative creation, adaptation, or re-presentation of a play, production, or performance process from three perspectives: dramaturgy, performance, and design/production. The process results in a final class project performance or presentation. Four contact hours.

**THEA 1220. Costume Technology I. (2)** Corequisite: THEA 1220L. Introduction to costume shop equipment, sewing techniques, and construction of costume accessories.

**THEA 1220L. Costume Technology Laboratory I. (1)** Corequisite: THEA 1220. Exploration of costume shop materials and construction procedures. Three laboratory hours per week.

**THEA 1240. Scenic Technology I. (2)** Corequisite:

THEA 1240L. Introduction to scene shop materials and techniques used in building scenery for theatrical applications.

**THEA 1240L. Scenic Technology I Laboratory. (1)** Corequisite: THEA 1240. Exploration of scene shop equipment and techniques used in building scenery for theatrical applications. Three laboratory hours per week.

**THEA 1260. Lighting and Sound Technology I. (2)** Corequisite: THEA 1260L. Introduction fundamentals of stage lighting and sound technology including instrument handling, focusing, basic electrical theory, practitioner roles, and current advancements.

**THEA 1260L. Lighting and Sound Technology I Laboratory. (1)** Corequisite: THEA 1260. Exploration through hands-on training of techniques associated with the installation and manipulation of a wide range of lighting and sound equipment and technology. Three laboratory hours per week.

**THEA 1600. Majors and Minors Seminar. (0)** Course consists of regular monthly meetings to disseminate and discuss department information and issues. Second monthly meeting consists of workshops on various aspects of the profession. *May be repeated for credit. Graded on a Pass/No Credit basis.*

**THEA 1860. Preliminary Experience in Student Teaching. (1)** Prerequisite: THEA 1160. Observation of licensed theatre arts teachers at the secondary school level. Some participation in class activities required. *Graded on a Pass/No Credit basis.*

**THEA 2130. Theatre History I. (3)** Prerequisite: Sophomore standing or above. An overview of the history of theatre practices, technologies, and literatures from the ancient world through the 19th Century.

**THEA 2131. Theatre History II. (3)** Prerequisite: THEA 2XXX. An overview of the history theatre practices, technologies, and literatures from the modern and contemporary eras.

**THEA 2140. Play Analysis. (3)** Prerequisite: Theatre major/minor or permission of instructor. Tools for developing the interpretation of the play script, including exploration of the ways scripts are used by directors, actors, designers, and dramaturges in preparing plays for the stage.

**THEA 2141. Dramaturgy I. (3) (W)** Prerequisites: THEA 1140 and THEA 2140. Exploration of two plays in the Department of Theatre's current production season, through dramaturgical research and essay

writing. The writing of performance reviews and program notes will also be practiced. Students will do historical research on the plays, playwrights, and prior productions. Students also learn to apply current theories and cultural concerns to specific points in each play, developing new meaning for staging the plays today.

**THEA 2201. Acting I. (3) (O)** An overview of the inner technique of an actor and an understanding of actor script analysis. With references to the work of Richard Bolaslavski and Konstantin Stanislavski and a variety of exercises and scene work, students learn to key their performances through the use of objectives and strategies. Four contact hours.

**THEA 2210. Costume Design I. (3)** An introduction to costume design theory and techniques for theatre, dance, and opera.

**THEA 2215. Stage Makeup. (3)** Theories and techniques of applying and designing stage makeup.

**THEA 2230. Scenic Design I. (3)** An introduction to scenic design theory and techniques for theatre, dance, and opera.

**THEA 2250. Lighting Design I. (3)** Cross-listed as DANC 2251. An introduction to lighting design theory and techniques for theatre, dance, and opera.

**THEA 2401. Production Practicum. (1)** Practical application of production work in the areas of scenery, lighting, sound, costuming, properties, publicity, box office, house management, and stage management. *May be repeated for credit.*

**THEA 2402. Performance Practicum: Theatre. (1)** Prerequisite: Audition. Practical application of performance techniques within a production setting, including auditions, rehearsals, and performances. *May be repeated for credit.*

**THEA 2460. Practicum in Creative Drama: K-8. (3)** Prerequisite: THEA 1160 or permission of instructor. Study and application of advanced theories, concepts, competencies, and processes unique to primary and middle school settings, with particular attention to the various subject areas. Centered on in-school teaching experience and clinical practice.

**THEA 2640. Playwriting/Screenwriting. (3)** Writing plays for stage or screen and performing dramatic readings of fellow writers' scenes.

**THEA 2670. Stage Management. (3)** An introduction to Stage Management through theory and practice as it relates to live performance and the arts.

**THEA 3130. Ancient, Medieval, and Asian Theatre. (3)** Prerequisite: Junior standing or above. The history and drama of ancient Greek, ancient Roman, medieval European, and traditional Asian forms of theatre.

**THEA 3131. Renaissance European Theatre. (3)** Prerequisite: Junior standing or above. The history and drama of Renaissance European theatre, including Shakespeare.

**THEA 3132. 17<sup>th</sup> to Early 20<sup>th</sup> Century Theatre. (3)** Prerequisite: Junior standing or above. The history and drama of European and American theatre, from the Restoration period to early twentieth-century realism and various antirealist movements.

**THEA 3133. Contemporary Theatre. (3)** Prerequisite: Junior standing or above. The history and drama of twentieth and twenty-first century theatre in America, Europe, Africa, and elsewhere.

**THEA 3134. Costume History. (3)** Introduction to historical origins and evolution of clothing including social and economic factors that influenced development.

**THEA 3201. Acting II. (3)** Prerequisite: THEA 2201 with a grade of B or above, Theatre major, or by audition. The goal of this course is to increase the intermediate acting student's awareness of the principles of an organic based acting technique and to aid them in establishing through exercises and scene work their own working methodologies within the art form. References will include works written by Konstantin Stanislavski and Robert Lewis. Areas of focus will include objectives, obstacles, strategies, play script scoring, rehearsal protocol, and applied research. Four contact hours.

**THEA 3202. Audition Techniques. (3)** Prerequisite: THEA 2201. Provides intermediate to advanced student actors with an understanding of the business of acting and the skills needed for one to be considered for employment. Students are taken through a variety of mock auditions including ones for theatre, film, and commercial work. Areas of focus include the preparation of headshots, resumes, websites, portfolios, and cover letters. Four contact hours.

**THEA 3203. Acting for the Camera. (3)** Prerequisite: THEA 2201 with a grade of B or above. Provides intermediate to advanced student actors with an overview of a successful acting technique for the creation of performances in television, motion pictures, and commercials. Through exercises and on camera scene work, students learn how to mold organic acting

technique elements to the subtle technologically based demands of the various media. Four contact hours.

**THEA 3205. Voice for the Actor. (3)** Prerequisite: THEA 2201 with a grade of B or above. Students develop clear and efficient use of their vocal instrument, and develop range and flexibility to create a multitude of roles. Students are taken through exercises developed by leading voice practitioners such as Catherine Fitzmaurice, Kristin Linklater, and Patsy Rodenburg. Areas of focus include pitch, volume, resonance rhythm, projection and articulation. Four contact hours.

**THEA 3206. Movement for the Actor. (3)** Prerequisite: THEA 2201 with a grade of B or above. Students develop clear and efficient use of their physical instrument, and develop range and flexibility to create a multitude of roles. Students are taken through exercises developed by leading physical theatre practitioners including work on Viewpoints, Alexander Technique and Commedia Dell'Arte mask work. Areas of focus include balance, articulation, rhythm, centers, and relationship to space. Four contact hours.

**THEA 3220. Advanced Costume Technology. (3)** Prerequisite: THEA 1220 or permission of instructor. In-depth exploration of pattern development, draping, fabric modification, and construction of accessories.

**THEA 3221. Directing I. (3)** Prerequisite: THEA 2201 or permission of instructor. Principles and techniques of play directing including analyzing texts, staging, and communication with actors.

**THEA 3260. Advanced Lighting Technology. (3)** Prerequisite: THEA 1260 or permission of instructor. In-depth exploration of dimming, control, paperwork, modern instrumentation.

**THEA 3265. Introduction to Computer Aided Drafting 2D. (3)** An introduction to precision drafting and rendering using the computer.

**THEA 3600. Junior Seminar. (1)** Prerequisite: Junior standing. Investigation and planning for immediate and life-long career options through guest lectures, panel discussions, site visits, presentations, and related mini-projects. Two contact hours. *Graded on a Pass/No Credit basis.*

**THEA 4001. Topics in Theatre. (1-6) (W)** Special topic in theatre. *May be repeated for credit with change of topic.*

**THEA 4140. Performance Theory. (3) (W)** Prerequisite: Junior or Senior standing and Theatre

major/minor, or permission of instructor required. Application of different perspectives to drama on the page, stage, and screen using various performance theories and approaches: semiotics, deconstruction, psychoanalysis, feminism, post-colonialism, and performance studies.

**THEA 4160. Theatre for Youth. (3)** An examination of the important works in the genre of Theatre for Youth with an emphasis on playwrights and analysis of content as it relates to social issues.

**THEA 4165. Methods of Facilitating Learning in Theatre Arts. (3) (W)** Prerequisites: THEA 1860; THEA 2460; EDUC 1100 or EDUC 2100; and Junior standing; or permission of instructor. Exploration of pedagogical methodologies in theatre arts and the application of theory to the classroom setting. Includes instructional planning and competencies for theatre arts courses. Includes clinical experience.

**THEA 4201. Acting III: Realism and Naturalism. (3)** Prerequisite: THEA 3201 with a grade of A. Instructs the advanced acting student on the use of an organic based acting technique in the creation of roles in realistic and naturalistic plays. Focusing on Chekhov, Williams, O'Neill and Mamet scene work, the student is instructed on research, script analysis, and performance techniques. Four contact hours.

**THEA 4202. Acting III: Elizabethan and Jacobean. (3)** Prerequisite: THEA 3201 with a grade of A. Instructs the advanced acting student on the use of an organic based acting technique in the creation of roles in *Elizabethan* and *Jacobean* plays. Focusing upon Shakespeare, Marlowe, and Jonson scene work, the student is instructed on research, script analysis, and performance techniques. Four contact hours.

**THEA 4203. Acting III: Period Styles. (3)** Prerequisite: THEA 3201 with a grade of A. Instructs the advanced acting student on the use of an organic based acting technique in the creation of roles in the plays of *Moliere* and various *Restoration comedies* plays, as well as some Ancient Greek texts. Focusing upon Moliere, Wycherley, and Congreve scene work, the student is instructed on research, script analysis, and performance techniques. Four contact hours.

**THEA 4204. Acting III: Experiential and Alternative. (3)** Prerequisite: THEA 3201 with a grade of A. Instructs the advanced acting student on the use of an organic based acting technique in the creation of roles in modern *experimental* and *alternative* plays. Focusing upon Brecht, Artaud, and other contemporary devising stylists, the student is instructed on research, script analysis, and performance techniques. Four contact hours.

**THEA 4205. Stage Dialects. (3)** Prerequisite: THEA 3201 or THEA 3205 with a grade of B or above. Provides the student with a process in dialect acquisition. Upon completion of the course, the student will have a basic understanding of the International Phonetic Alphabet (IPA), demonstrate knowledge of specific vowel and consonant changes for dialects covered, and be able to demonstrate specific dialects through performance. Four contact hours.

**THEA 4221. Directing II. (3)** Prerequisite: THEA 3221. Continuation of THEA 3221, with emphasis on advanced analysis, coaching, communication with designers, and complex staging problems.

**THEA 4230. Scenic Design II. (3)** Prerequisite: THEA 2230 or permission of instructor. Advanced scenic design theory and projects.

**THEA 4231. Drawing for the Theatre. (3)** Foundational drawing concepts developed for students of the theatre. Discrete exercises explore a variety of entry points into drawing what the eye sees free from old habits, as well as strengthening clear graphic communication in theatrical sketching and rendering. Three contact hours.

**THEA 4233. Scenic Painting. (3)** Prerequisite: THEA 1240 or permission of instructor. An introduction to basic scenic painting techniques, paint media, and materials.

**THEA 4234. Stage Properties. (3)** Prerequisite: THEA 2230. An introduction to the work of a theatre props department. Focuses on the functions and role of the Properties Manager in the production process. Also addresses several common properties fabrication techniques through hands-on projects. Three contact hours.

**THEA 4235. Welding and Metal Working. (3)** Prerequisite: THEA 1240. The equipment, materials, and techniques used in the welding and cutting processes most often employed in the manufacturing of scenery. These include: oxyfuel gas welding and cutting, shielded metal arc welding, gas metal arc welding, and tungsten gas arc welding.

**THEA 4236. Audio Engineering. (3)** Prerequisite: THEA 1260. The basic techniques of controlling, editing and distributing of sound and audio for the theatre. Emphasis on system design, equipment use, and sound systems integration. Three contact hours.

**THEA 4250. Lighting Design II. (3)** Prerequisite: THEA 2250 or permission of instructor. Advanced lighting design theory and projects.

**THEA 4400. Internship in Theatre. (3-6)** Prerequisite: GPA of a least 2.5, Junior standing, and permission of department chair. Research and/or in-service training for theatre majors and minors in cooperating organizations. Specific content is based upon a contract between the students, department, and professional organization. *Graded on a Pass/No Credit basis.*

**THEA 4460. Practicum in Secondary School Play Production: 9-12. (3)** Prerequisites: THEA 2201 and THEA 3221, or permission of instructor. Study and application of advanced theories, concepts, competencies, and processes in theatre arts for teaching the specialized areas of production and performance in a secondary school setting (9-12).

**THEA 4467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Theatre. (15) (0)** Prerequisites: approved application for student teaching; Senior standing; completion of professional education requirements; and grades of C or above in all courses required for licensure. Corequisite: enrollment only in student teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved school setting under the supervision and coordination of a University supervisor and a cooperating teacher in which the student demonstrates the competencies identified for his/her specific teaching field in an appropriate grade level setting.

**THEA 4600. Senior Project. (1)** Prerequisite: Senior standing. Synthesis, integration, and application of theoretical and experiential study in theatre through individual/group project. Students, working with a mentor, prepare a paper, performance project or portfolio presentation in their area of emphasis. One contact hour.

**THEA 4601. Individual Project. (1-6)** Prerequisite: Permission of department chair. *May be repeated for credit.*

**THEA 4610. Advanced Design, Technology, and Management. (2-3)** Prerequisite: Permission of instructor. Large-scale applications of design and production topics on realized productions. *May be repeated for credit.*

**THEA 4670. Theatrical Production Management Techniques. (3)** Prerequisite: THEA 2670. A study of management techniques needed by all of those who perform a management role in the performing arts.

Topics include: communication skills, team building, assertiveness, goal setting, time management, stress management and an overview of production organizations. This is accomplished with thorough discussion of texts and actual production experiences. Three contact hours.

**THEA 4800. Directed Independent Study. (1-3)** Prerequisite: Permission of instructor and the department, major in Theatre or Theatre Education with Junior or Senior standing, and a GPA of at least 2.5. Allows students to pursue faculty-directed independent study topics (1) of special interest to the student, (2) within the area of the instructor's special competence, (3) not provided by other Department offerings. *May be repeated for credit.*

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## Translating (TRAN)

**TRAN 3401. Introduction to Translation Studies. (3)** Pre- or corequisite: FREN 3201, FREN 3202, GERM 3201, GERM 3202, JAPN 3201, RUSS 3201, SPAN 3201, SPAN 3202, or SPAN 3203 with grade of C or above or permission of department. History, theory, pragmatics, and procedures of the field of translation. Introduction to text typology, terminology, and issues such as register, audience, editing, and computer-assisted translating. Conducted in English.

**TRAN 4402F. Practicum in Translating I - French. (3)** Pre or co-requisites: TRAN 3401 and a FREN 3000-level course or equivalent with grades of C or above, or permission of department. Comparative stylistics, restructuring texts, editing, troubleshooting, and techniques of the translator in working with a variety of text types. Conducted in English and French.

**TRAN 4402G. Practicum in Translating I - German. (3)** Pre- or corequisites: TRAN 3401 and a GERM 3000-level course or equivalent with grades of C or above, or permission of department. Comparative stylistics, restructuring texts, editing, troubleshooting, and techniques of the translator in working with a variety of text types. Conducted in English and German.

**TRAN 4402J. Practicum in Translating I - Japanese (3)** Pre- or corequisites: TRAN 3401 and JAPN 3202 or equivalent with grades of B or above, or permission of department. Comparative stylistics, restructuring texts, editing, troubleshooting, and techniques of the translator in working with a variety of text types. Conducted in English and Japanese.

**TRAN 4402R. Practicum in Translating I - Russian. (3)** Pre- or corequisites: TRAN 3401 and a RUSS 3000-level course or equivalent with a grade of B or above, or permission of department. Grammatical and

lexical issues of translation; restructuring texts, editing, troubleshooting, and techniques of the translator in working with a variety of text types (documents, essays, fiction, poetry). Conducted in English and Russian.

**TRAN 4402S. Practicum in Translating I - Spanish. (3)** Pre- or corequisites: TRAN 3401 and a SPAN 3000-level course or equivalent, with grade of C or above, or permission of department. May count as coursework for the Spanish major. Understanding audience, text typologies, register, and regionalisms. Continues with theory of translation. Conducted in English and Spanish.

**TRAN 4403F. Practicum in Translating II - French. (3)** Prerequisites: TRAN 4402-F with grade of C or above, or permission of department. Critical analysis of different kinds of texts; translating for specific audiences; problems of terminology; development of working dictionaries in fields(s) of specialization. Conducted in English and French.

**TRAN 4403G. Practicum in Translating II - German. (3)** Prerequisites: TRAN 4402-G with grade of C or above, or permission of department. Critical analysis of different kinds of texts; translating for specific audiences; problems of terminology; development of working dictionaries in fields(s) of specialization. Conducted in English and German.

**TRAN 4403R. Practicum in Translating II - Russian. (3)** Prerequisites: TRAN 4402-R with a grade of B or above, or permission of department. Further work in restructuring texts, editing, troubleshooting. Pragmatic/cultural issues of translation in dealing with a variety of text types (documents, essays, fiction, poetry) as well as the specifics of film translating. Conducted in English and Russian.

**TRAN 4403S. Practicum in Translating II - Spanish. (3)** Prerequisites: TRAN 3401 or TRAN 4402-S, and a SPAN 3000-level course or equivalent, each with grade of C or above, or permission of department. Emphasizes commercial, financial, legal, political, medical, and scientific translation. Continues with history and theory of translation. Conducted in English and Spanish. May be taken concurrently with TRAN 4404-S and may also count as coursework for the Spanish major.

**TRAN 4404F. Practicum in Translating III - French. (3) (W)** Pre- or corequisite: TRAN 4403-F with grade of C or above, or permission of department. Study of professional journals, technologies, protocol, and resources in the field (e.g., ATA, ALTA). Advanced issues of translation. Translation of a semester-long project in individual consultation. Conducted in English and French.

**TRAN 4404G. Practicum in Translating III - German. (3) (W)** Pre- or corequisite: TRAN 4403-G with grade of C or above, or permission of department. Study of professional journals, technologies, protocol, and resources in the field (e.g., ATA, ALTA). Advanced issues of translation. Translation of a semester-long project in individual consultation. Conducted in English and German.

**TRAN 4404R. Practicum in Translating III - Russian. (3) (W)** Prerequisite: TRAN 4403-R with a grade of B or above, or permission of department. Study of professional journals, technologies, protocol, and resources in the field (e.g., ATA, ALTA). Advanced issues of translation. Translation of a semester-long project in individual consultation with instructor. Conducted in English and Russian.

**TRAN 4404S. Practicum in Translating III - Spanish. (3) (W)** Prerequisites: TRAN 3401 or TRAN 4402-S, and a SPAN 3000-level course or equivalent, each with grade of C or above, or permission of department. Emphasizes literary, cultural, and consumer-level translation. Conducted in English and Spanish. May be taken concurrently with TRAN 4403-S and may also count as coursework for the Spanish major.

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## University College/General Education (UCOL)

**UCOL 1000. College Transition for First-Year Students. (1-3)** Prerequisite: Freshman standing. Designed to assist with the intellectual and social transition from high school to college by increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *May not be repeated for grade replacement.*

**UCOL 1001. College Transition for First-Year Students. (1-3)** Prerequisite: Freshman standing. Designed to assist with the intellectual and social transition from high school to college by increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *Graded on a Pass/No Credit basis.*

**UCOL 1010. College Transition for Transfers. (3) (W)** Designed to assist with the intellectual and social transition to UNC Charlotte for transfer students by

increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *May not be repeated for grade replacement.*

**UCOL 1011. College Transition for Transfers. (1-3) (O)** Designed to assist with the intellectual and social transition to UNC Charlotte for transfer students by and increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *May not be repeated for grade replacement.*

**UCOL 1200. First-Year Seminar. (3)** A seminar-style learning experience focused around a particular theme that is designed to assist with the intellectual and social transition from high school to college by increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *May not be repeated for grade replacement.*

**UCOL 1205. Enrichment Seminar. (1-3)** A seminar-style learning experience designed to enrich the education experience of one or more courses taken concurrently. The enrichment seminar is focused around a particular theme defined by the companion course(s) and provides opportunities to explore the topics of the course(s) in more detail and with additional materials, experiences, and assignments. The enrichment seminar will also address the college transition experience by enhancing students' involvement with and knowledge of the campus and its resources and promoting problem solving and oral and written communication skills. Open to new first-year students only; requires co-registration in designated companion section(s) as indicated. *May be repeated for credit with change of topic one time.*

**UCOL 1206. Enrichment Seminar. (1-3)** A seminar-style learning experience designed to enrich the education experience of one or more courses taken concurrently. The enrichment seminar is focused around a particular theme defined by the companion course(s) and provides opportunities to explore the topics of the course(s) in more detail and with additional materials, experiences, and assignments. The enrichment seminar also addresses the college transition experience by enhancing students' involvement with and knowledge of the campus and its

resources and promoting problem solving and oral and written communication skills. Open to new first-year students only; requires co-registration in designated companion section(s) as indicated. *Graded on a Pass/No Credit basis. May be repeated for credit one time with change of topic.*

**UCOL 1210. Transfer Seminar. (3) (W)** A seminar-style learning experience focused around a particular theme that is designed to assist with the intellectual and social transition to UNC Charlotte for transfer students by increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and writing skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *May not be repeated for grade replacement.*

**UCOL 1211. Transfer Seminar. (3) (O)** A seminar-style learning experience focused around a particular theme that is designed to assist with the intellectual and social transition to UNC Charlotte for transfer students by increasing the involvement of students in the intellectual life of the campus; providing an orientation to resources available to students; and promoting problem solving and oral communication skills. Students who have previously taken any UCOL 1000-level course may not receive credit for this course. *May not be repeated for grade replacement.*

**UCOL 1300. Academic Success Seminar. (2)** Prerequisite: Permission of department. Designed to assist continuing university students with the development of study and problem solving skills. Emphasizes using academic support resources, engaging in campus life, and enhancing academic performance. *May not be repeated for grade replacement.*

**UCOL 1305. Peak Performance Success Seminar. (1)** Prerequisite: Permission of department. Designed to assist continuing students with the development of study and problem solving skills. Emphasizes using academic support and campus resources to enhance academic performance. There is one required initial meeting with the instructor; all assignments are submitted online. *May not be repeated for grade replacement.*

**UCOL 2000. Topics in General Education. (3)** Prerequisites: sophomore standing and permission of the sponsoring department. Topics chosen from the fields covered by General Education in order to demonstrate relationships and interdisciplinary influences. *May be repeated for credit with change of topic and permission of student's major department.* Can be used toward general degree requirements as

indicated each time the course is offered.

**UCOL 2200. University Learning Seminar. (1-3)**

Prerequisite: permission of University College. Provides instruction in digital literacy, critical thinking, problem solving, and written and oral communication skills. Each section will be developed around a content theme selected from instructor's discipline. Designed to reinforce and augment students' intellectual and social transition to the University learning environment. Students who have previously taken a UCOL 1000-level course may receive credit for this course if registering with permission.

**UCOL 3400. Preceptor Training Seminar. (1)**

Prerequisite: Permission of University College. Students enrolled in the seminar learn how to support faculty in the classroom. Topics include: enriching learning engagement, supporting undergraduate student success, enhancing academic enrichment, and monitoring the classroom. Students also develop teaching-related skills and learn to provide mentorship to first-year students. *May not be repeated. Graded on a Pass/No Credit basis.*

**UCOL 3401. Graduate Education Opportunities. (1)**

An introductory course designed to provide talented undergraduate students, particularly from under-represented groups, opportunities to explore various aspects of graduate education. Students participate in instructional sessions designed to provide an overview of graduate education while exploring academic disciplines of interest in more detail. Students develop an admissions application and statement of purpose.

**UCOL 3450. Teaching Internship. (1-3)**

Prerequisite: Permission of the sponsoring unit and supervising instructor. Pre- or corequisite: UCOL 3400. A structured opportunity for students to develop teaching-related skills by providing assistance to faculty in the classroom and/or working in a structured mentoring role in support units such as the University Center for Academic Excellence. Duties vary depending upon the assignment but may include: conducting review sessions, facilitating study skills sessions, lecturing, and assisting faculty member with exams. *May be repeated for credit up to 6 credits. Graded on a Pass/No Credit basis. Honors course.*

**UCOL 3800. Independent Study. (3)**

Prerequisite: Permission of instructor and Dean of University College. Individual research, research, or field-based experience in a topic under the supervision of a faculty member. *May be repeated for credit with permission.*

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## Urban Studies (URBS)

**URBS 2200. Introduction to Urban Studies. (3)**

Cross-listed with GEOG 2200. A survey course exploring the diverse perspectives and experience of North American Cities. Lectures and discussions focus on the development, organization, function, and meaning of urban areas, as well as the multiple and complex relationships that exist between cities and the people who live and work within them. Students who pass this course meet the requirements for the "Western Tradition" area of the LBST requirements and will not have to take an additional course to satisfy that area of General Education.

**URBS 3050. Topics in Urban Studies. (3)** Timely and important areas of scholarship and application relevant to urban studies. *May be repeated for credit with change of topic and permission of Director of the Minor in Urban Studies program.*

**URBS 3801. Independent Study in Urban Studies. (1-3)**

Prerequisites: URBS 2200, declared Urban Studies minor, Junior or Senior standing, GPA of at least 2.0, and permission of supervising instructor and Director of Minor in Urban Studies program. Area of study beyond the scope of current offerings to be devised by student and faculty member. *May be repeated for credit.* Three hours of URBS 3801 may be used toward the URBS minor with prior approval of the Director of the Minor in Urban Studies.

**URBS 4401. Internship in Urban Studies. (3)**

Prerequisites: URBS 2200, declared Urban Studies minor, Junior or Senior standing, GPA of at least 2.0, and permission of Director of Minor in Urban Studies program. Students work 8-10 hours per week (total 120 hours per semester) for 3 credit hours in an approved research or in-service placement relevant to urban studies. Specific content of internship based on a contract between the student, supervising professor, and community/corporate organization. *May not be repeated for credit. Graded on a Pass/No Credit basis.*

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## University Writing Program (UWRT)

**UWRT 1100. Supplemental Writing for English Language Learners. (3)**

Prerequisite: University Writing Program placement test for students whose primary language is not English. Corequisite: UWRT 1101. Limited to students whose primary language is not English who may need additional support while concurrently enrolled in a designated section of UWRT 1101. Does not count toward the English major or toward the General Education requirement.

**UWRT 1101. Writing and Inquiry in Academic Contexts I. (3)**

Prerequisite: Appropriate score on SAT Verbal and high school performance; the

prerequisite determines whether students take both UWRT 1101 and UWRT 1102, or just UWRT 1103. Writing is both the primary subject of inquiry and the primary activity. Students write, revise, edit and reflect on their writing with the support of the teacher and peers. Students also engage critically with the opinions and voices of others, as they are encouraged to understand how their writing can have an effect on themselves and their environments. As the primary subject of readings and discussion, writing is explored as it relates to different contexts, discourses, cultures and textual media. As students inquire into literacy, they understand their own writing and development with heightened awareness. Grades are derived primarily from portfolios that include work generated throughout the term.

**UWRT 1102. Writing and Inquiry in Academic Contexts II. (3)** Prerequisite: UWRT 1101 or equivalent credit via AP English Language score or transfer credit. Students develop an extended inquiry project that integrates materials from varied sources and includes writing in multiple genres. Students write, revise, edit and reflect on their writing with the support of the teacher and peers. Students also immerse themselves in a conversation about a topic through reading, questioning, and process writing. Polished writing might assume the forms of presentations, reviews of research, essayistic arguments, or multi-media and web-based projects. Students learn to distinguish rhetorical contexts, practice different conventions, and develop positions in relation to research. They also adopt digital technologies to network, compose, and/or critique and disseminate their work. Grades are derived primarily from portfolios that include work generated throughout the term.

**UWRT 1103. Writing and Inquiry in Academic Contexts I and II. (3)** Prerequisite: Appropriate score on SAT Verbal and high school performance; the prerequisite determines whether students take both UWRT 1101 and UWRT 1102, or just UWRT 1103. Students write extensively as they explore literacy and writing. They engage critically with the opinions and voices of others while developing an extended inquiry project that integrates materials from varied sources and includes writing in multiple genres. Students write, revise, edit and reflect on their writing with the support of the teacher and peers. Students also immerse themselves in a conversation about a topic through reading, questioning, and process writing. Students learn to distinguish rhetorical contexts, practice different conventions, and develop positions in relation to research. They also adopt digital technologies to network, compose, and/or critique and disseminate their work. Grades are derived primarily

from portfolios that include work generated throughout the term.

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## Women's and Gender Studies (WGST)

**WGST 1101. Introduction to Women's Studies. (3)** Introduction to values associated with gender and basic issues confronting women in society, from a variety of cultural and feminist perspectives.

**WGST 2050. Topics in Women's Studies. (1-3)** Credit hours vary with topics. Special topics in Women's Studies. *May be repeated for credit with change of topic.*

**WGST 2051. Topics in Women's Studies. (3) (W)** Special topics in Women's Studies. *May be repeated for credit with change of topic.*

**WGST 2110. Women and the Media. (3)** Cross-listed as COMM 2110. Examination of messages about women as conveyed in contemporary media (magazines, newspapers, videos, the Internet, video games, television, and movies.) The role of gender in the power structures of the media producers is also analyzed.

**WGST 2120. African American Women. (3)** Cross-listed as AFRS 4120. Explores how cultural, political, historical and economic factors shape African American women's positions and opportunities in society today.

**WGST 2123. Women in Cross-Cultural Perspective. (3)** Cross-listed as ANTH 2123. A cross-cultural survey of the lives of women and the dynamics of gender throughout the world. Uses anthropological research to examine how gender influences evolution, social stratification, work, kinship, and perceptions of the body.

**WGST 2130. Masculinity and Manhood. (3)** This course examines the construction of masculinity in sports, family, work and other social relationships, showing how it shapes and is shaped by people, institutions and society.

**WGST 2140. Gender and Sport. (3)** Explores the gendered nature of sports and the impact of feminist theory on the study of sport. Areas of focus include historical developments, media and representation, race and ethnicity, masculinity, sexuality, and physicality and power.

**WGST 2150. U.S. Women's History to 1877. (3)** Cross-listed as HIST 2150. A survey of women's

experience in the U. S. from colonization through the civil war and reconstruction. Special emphasis on the evolution of women's public roles and the impact of class, race, and region in shaping women's lives.

**WGST 2160. Introduction to Lesbian and Gay Studies. (3)** Provides an overview of historical, sociopolitical, and psychological influences on the development of current day lesbian and gay social movements and cultures.

**WGST 2170. Gender and Globalization. (3)** Examines how globalization interacts with and influences gender roles around the world. Specific Topics include: the effect of globalization on the gendered divisions of power, violence, labor, and resources.

**WGST 2251. U.S. Women's History since 1877. (3)** Cross-listed as HIST 2151. A survey of women's experience in the U.S. from reconstruction to the present. Special emphasis on work, family, and feminism, and the impact of class, race, and region in shaping women's lives.

**WGST 2252. European Women's and Gender History. (3)** Cross-listed as HIST 2152. An exploration of women's experiences in western Europe and Russia, covering topics of religion, work, family, and politics.

**WGST 2310. Gender, Activism, and Leadership. (3) (W)** Students select and complete a community activism project focusing on a gender issue. Key issues and controversies of past and present feminist/social movements, and what activists are doing today. While exploring the components of ethical leadership, students learn how to apply classroom theory to the real world around them.

**WGST 3019. Hispanic Women Writers in English Translation. (3) (W)** Cross-listed as LTAM 3319 and SPAN 3019. Prerequisite: UWRT 1102 and Sophomore standing, or permission of instructor. Examination of prose and poetry by women writers from Spain and the Americas to understand women's voices and other cultures. Conducted in English. Knowledge of Spanish not required. Not applicable toward Spanish major or minor.

**WGST 3050. Topics in Women's Studies. (3)** Special topics in Women's Studies. *May be repeated for credit with change of topic.*

**WGST 3051. Topics in Women's Studies. (3) (W)** Special topics in Women's Studies. *May be repeated for credit with change of topic.*

**WGST 3102. Changing Realities of Women's Lives. (3) (W)** Influence of gender, race and class stereotypes on women's identities and choices. Examination of women's individual circumstances through writing.

**WGST 3110. Gender and Communication. (3)** Cross-listed as COMM 3110. Examination of the relationship between language and gender. Topics covered include how language shapes perceptions of men/women; gender differences in verbal and nonverbal communication; and gendered communication in relationships, friendships, and the workplace.

**WGST 3111. Women in Judaism. (3)** Cross-listed as RELS 3111. A survey of the roles and activities of Jewish women throughout Jewish history, as it is portrayed in a diverse sampling of Jewish religious literature and practice.

**WGST 3112. Women's Diaries and Women's Experience. (3) (W)** This course examines why women keep diaries, how diaries provide an understanding of women's experiences, and how diaries may be read as literature.

**WGST 3130. Perspectives on Motherhood. (3)** Examination of the social, political, and economic conditions surrounding motherhood in the U.S.; explores the history and representations of motherhood, contraceptive/abortion issues, pregnancy and birthing practices, gender-neutral, same-sex, and bi-racial parenting.

**WGST 3131. History of Sexuality. (3)** Cross-listed as HIST 3131. An exploration of the roots of our modern attitudes toward sexuality beginning with ancient Greece and Rome, Judaism, and Christianity. Examination of changing attitudes and practices from the Enlightenment to the Victorians. Discussion of marriage, fertility control, abortion, prostitution, and homosexuality.

**WGST 3140. Domestic Violence. (3)** A survey of domestic violence in the US focusing on female experience as both victim and survivor of partner abuse. We will evaluate theories of partner violence, examine types of abuse across diverse female lifespans, and discuss multicultural and gender expectations, treatment, modalities, and social policy implications.

**WGST 3150. Body Image. (3)** Discussion of body image through varying perspectives: size discrimination, advertising and consumerism, eating disorders, cosmetic surgery, self-image/male gaze, health vs. beauty, etc. All perspectives are examined

as they are projected across the intersection of sexism, racism, classism, ageism and sexuality.

**WGST 3160. Gender and Education. (3)** Explores the relationship between gender and education, primarily in the context of formalized schooling. Topics include: the history of women's education; gender identity and socialization; gender discrimination and biases in curriculum and classroom teaching; gender gaps in academic performance; and the relationship between educational choices and gender.

**WGST 3170. Female Adolescence in Film. (3)** Study of mainstream and independent films that focus on adolescent girls (or the lack thereof) and the sometimes symbiotic relationship between these films and society.

**WGST 3180. Gender in Hip Hop Culture. (3)** Examines the roles of gender during the Black Power Movement to the ascendancy of Hip Hop culture in the twenty-first century. Designed to introduce students to the patterns of converging and cross cutting racism, nationalism, and feminism that are vitally important to the hip hop generation.

**WGST 3212. Women and Peacebuilding. (3)** Exploration of the contributions women can make and have made to peacebuilding and conflict-resolution.

**WGST 3215. Religion and Sexuality. (3)** Cross-listed as RELS 3215. An examination of the role of religious discourses and practices in shaping, understand and evaluating sexual practices, desires and identities. Although the focus of this course may vary, it may only be taken once for credit.

**WGST 3216. Religion and Masculinity. (3)** Cross-listed as RELS 3220. An examination of the role of religious discourses and practices in shaping, regulating and evaluating masculine identities and practices. Although the focus of this course may vary, it may only be taken once for credit.

**WGST 3220. Feminist Thought. (3) (W)** Prerequisite: WGST 1101 or permission of instructor. Cross-cultural and interdisciplinary survey of the main traditions of feminist theory in the context of their historical and philosophical roots.

**WGST 3221. Feminist Thought. (3)** Prerequisite: WGST 1101 or permission of instructor. Cross-cultural and interdisciplinary survey of the main traditions of feminist theory in the context of their historical and philosophical roots.

**WGST 3226. Introduction to the Psychology of Women and Gender. (3)** Cross-listed as PSYC 3126.

Prerequisite: PSYC 1101 with grade of C or above. Application of research in developmental, experimental, and clinical psychology to issues regarding women and gender. Includes such topics as gender-role development, gender differences in cognitive abilities and performance, psychological perspectives on women's physical and mental health, and violence toward women.

**WGST 3230. Women, Work, and Money. (3)** Explores the relationship of American women to money - as workers, consumers, caregivers, etc. Examines the dynamics of wealth, poverty, care-giving, mothering, gendering and occupational segregation on the lives of all women, young and old.

**WGST 3231. Working Women/Women in Business. (3)** Historical, sociological, legal, personal, and cross-cultural issues affecting working women.

**WGST 3310. Gender and Sexuality. (3)** An interdisciplinary introduction to gender and sexuality studies. Its primary focus is critical perspectives on the social construction of gender and sexuality, inequalities based on gender and sexuality, activism around issues of gender and sexuality, and how gender and sexuality shape and are shaped by other systems of inequality.

**WGST 3803. Independent Study. (3)** Prerequisite: permission of instructor and Women's Studies Coordinator. Supervised individual study and/or field-based experience in a topic or area of Women's Studies of particular interest to the student. *May be repeated for credit.*

**WGST 3820. Feminist Philosophy. (3)** Cross-listed as PHIL 3820. Views of contemporary feminist and female philosophers on traditional philosophical issues such as ethics, human nature, the construction of knowledge, modes of social and political organization, the relationship between the mind and the body, and the nature of God.

**WGST 4050. Topics in Women's Studies. (1-3)** Prerequisite and credit hours vary with topics. Special topics in Women's Studies. *May be repeated for credit with change of topic.*

**WGST 4051. Topics in Women's Studies. (3) (W)** Special topics in Women's Studies. *May be repeated for credit with change of topic.*

**WGST 4120. Women's Studies International. (3)** Cross-listed as INTL 3120. Explores policies affecting women's lives across international borders and will look at a range of topics from divorce, marriage, violence against women and abortion to work and poverty.

**WGST 4130. Female Adolescence in America. (3)** Explores the modern cultural, social and personal experience of young females in America. The central focus of the course will be the social construction of femininity and how it impacts female adolescents. We will examine the influence of race/ethnicity, class, and sexuality upon the lives of female adolescents.

**WGST 4131. Culture, Pregnancy, and Birth. (3)** Cross-listed as ANTH 4131. Explores how culture shapes the experience and practice of pregnancy and birth. Topics include: the birthing experience, midwifery, infertility, new reproductive technologies, and surrogate motherhood.

**WGST 4140. African American Feminism. (3)** Examines the foundations, ideas, concerns and implications of African American feminism within historical and contemporary United States. Centers on fostering dialogues and critical discussions about African American feminism as a site of theory and practice emphasizing social, political, and personal transformation.

**WGST 4150. Gender, Science, and Technology. (3)** Examines select issues related to women and gender in science and technology. Topics include: the role of women in science, the impact of science and technology on women, and feminist critiques of science and technology.

**WGST 4160. Race, Sexuality, and the Body. (3)** Examines how biological, historical, and cultural interpretations of race and gender influenced and characterized definitions of sexuality and body image among persons of color.

**WGST 4165. Sociology of Women. (3)** Cross-listed as SOCY 4165. Prerequisites: SOCY 1101 or WGST 1101; Junior standing or permission of instructor. Examines how the social world of women is influenced by their race, ethnicity, and class. Attention is given to changing roles of women in public and private spheres, and to the role conflict that arises as women attempt to meet obligation in families, communities, and the workplace.

**WGST 4170. Queer Theory. (3)** Introduction to key issues in queer theory, a field of studies that questions and redefines the identity politics of early lesbian and gay studies. Queer theory investigates the socially constructed nature of identity and sexuality and critiques normalizing ways of knowing and being.

**WGST 4191. Women's Health Issues. (3)** Cross-listed as NURS 4191. Prerequisite: Permission of instructor. Exploration of contemporary issues in

women's health from the feminist and women's health movement perspectives.

**WGST 4228. French Women Writers in Translation. (3)** Prerequisites: Junior standing and UWRT 1102 or equivalent. Advanced studies of literature and criticism by French women writers in English translation, with a focus on women's issues from a cross-cultural perspective. *May be repeated for credit with change of topic.* Course conducted in English.

**WGST 4260. Women: Middle Age and Beyond. (3)** Cross-listed as GRNT 4260 and HLTH 4260. Position of older women in society and the particular problems of and issues for women as they age.

**WGST 4401. Internship in Women's Studies. (3)** Prerequisites: Declared Women's Studies minor and permission from the Director of Women's Studies. Research and in-service training in cooperative community organizations that provide services to women and their families. Specific content based on a contract between the student, supervising professor, and community organization. Graded on a H/P/NC basis.

**WGST 4601. Senior Colloquium. (3)** Prerequisite: completion of 15 hours in women's studies, or permission of instructor. Critical examination of selected issues.

# *Student* Life and Resources



# Student Life and Resources

<http://www.uncc.edu/landing/campus-life>

The University of North Carolina at Charlotte provides a comfortable and enjoyable environment for students that is conducive to learning. The services, facilities, and programs of the University promote individual student development and foster a community which promotes the involvement of students in their intellectual, cultural, spiritual, emotional, and physical development.

Students at UNC Charlotte are encouraged to participate in extracurricular activities. Athletics, the Student Government Association, the Campus Activities Board, and Student Media are a few of the available activities that can play a significant role in each student's development and total education. Participation in activities, ranging in type from service and religious to athletic and social, and from creative arts and crafts to wilderness experiences, increases a student's opportunities to acquire leadership skills, to experience the responsibilities involved in functioning within a self-governmental process, and to develop personal talents and interests.

**Note:** *Students are entitled to participate in several student groups and organizations as long as they are academically eligible to continue their enrollment. However, participation in some activities require students to be in good standing with the University, both academically and in accordance with The Code of Student Responsibility (located in the "University Regulation of Student Conduct" section of the Catalog).*

## Academic Services

<http://academicservices.uncc.edu>

The **Academic Services** unit at UNC Charlotte enriches the academic community by offering a broad range of initiatives promoting student success, ensuring access, and enhancing the educational experience of all students. Through transition

programs, learning communities, support for student-athletes, career services, experiential learning, honors education and services, disability services, tutorial programs, and initiatives for underrepresented students, Academic Services cultivates life skills critical to successful graduation and global citizenship. Addressing the needs of a diverse student population, Academic Services utilizes an integrated student-centered approach which reinforces rigorous academic expectations and encourages student engagement from the time of enrollment through graduation.



## Athletic Academic Center

The Charlotte 49ers Athletic Academic Center provides assistance to all Charlotte varsity student-athletes to achieve academic and personal success at the University by providing support services designed to meet their unique needs and ensuring the student athlete's compliance with all National Collegiate Athletic Association, Conference, and University regulations. Academic advisors provide academic advising services, priority registration, tutorial services, supervised study sessions, a computer lab, résumé writing assistance, a life skills program, and academic recognition. Contact information is available online at [charlotte49ers.com](http://charlotte49ers.com).

## Disability Services

The Office of Disability Services works with departments across UNC Charlotte to ensure that educational programs and campus facilities are accessible to individuals with disabilities. Students with disabilities who wish to receive accommodations must provide documentation from their healthcare provider to Disability Services. After a determination of eligibility is made, students schedule a registration appointment with a Disability Services counselor to determine appropriate and reasonable accommodations. Disability Services offers a wide range of accommodations based on specific, documented disability needs.

It is the mission of the Office of Disability Services to provide access to education and support a culturally rich, inclusive, and accessible campus environment.

We recognize that services and accommodations can be different in college than in high school, and can even vary from college to college. We encourage students contact Disability Services with questions they might have about eligibility, services, and accommodations. Learn more at [ds.uncc.edu](http://ds.uncc.edu).

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## Honors College

The Honors College offers academically talented and highly motivated students opportunities for intellectual breadth, undergraduate research, service learning, and a community feeling within the context of a large public research university. Comprised of several distinct honors programs, each with its own standards for admission and requirements for graduation, the Honors College is a campus hub for undergraduate honors courses, enrichment opportunities, scholarships, study abroad, community service, faculty lectures, and advising for pre-health professions and prestigious award nominations. Please see the individual "Honors College" section of this *Catalog* for complete details.

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## Learning Community Program

UNC Charlotte's Learning Community Program is transforming the way students live, learn, and succeed in their academic endeavors. Learning communities help new students transition through academic and social challenges by providing small, supportive living and learning environments.

Students interact closely with UNC Charlotte faculty, staff and peer mentors through areas of common interest, enroll in 2 or 3 of the same courses and in many cases live together in the same residence hall. Through the year-long learning communities, students make friends and develop close relationships.



While most learning communities are residentially based, some do not require living on campus. Most learning communities designed for freshmen; three are specifically designed for new transfer students.

Whether students are interested in business, communication studies, computing, criminal justice, engineering, English, gender studies, health, history, international relations, leadership, liberal arts and sciences, politics, psychology, teaching, or are not sure yet, they are likely to find a community of interest. Two pre-existing groups have learning communities: Building Educational Strengths and Talents (BEST) and University Transitions Opportunity Program (UTOP).

Contact and application information for UNC Charlotte's Learning Communities can be found online at [lc.uncc.edu](http://lc.uncc.edu).

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## Multicultural Academic Services

The Office of Multicultural Academic Services, while open to all students, provides academic support to students of African, Asian, Hispanic/Latino, Pacific Islander, and Native American descent. The Office serves as a clearinghouse for information and referrals to ensure access and long-term academic success of all students.

Services, for individuals and groups, include: secondary academic advising; tutoring in math, science and engineering; weekly study halls; mentoring; workshops; monitoring of academic progress; recognition of academic achievement; personal, cultural and leadership development; resources and referrals for students, faculty and staff; academic support for undergraduate and graduate students. Programs include:

### University Transition Opportunities Program (UTOP)

UTOP is a summer academic bridge program designed to facilitate the transition from high school for first-time freshmen. In UTOP, a limited number of incoming freshmen participate in a structured collegiate experience prior to fall semester enrollment. Seven hours of credit are awarded for the successful completion of UTOP coursework, which consists of English Composition, Supplemental English, Liberal Studies, Intro to Chemistry, or a subject-specific Freshman Seminar. Participants also have the option of participating in a one-year Learning Community in which students are engaged in coursework and activities that emphasize growth and development in liberal arts education, diversity, and campus connections. Learning Community participants continue to enroll in courses together and share living/learning environments during the fall and spring semesters. UTOP is designed to help build a solid foundation for students from traditionally underrepresented populations and first generation college students.

### Student Advising For Freshman Excellence (SAFE)

Co-sponsored by the Office of the Dean of Students, SAFE is a peer mentoring program designed to facilitate the transition from high school to college for all incoming freshmen. SAFE combines academic support with personal development programming to encourage academic achievement, positive self-concept, and increased personal growth. SAFE is structured on three pillars of success: mentoring,

academic support, and social networking. The SAFE program has proven to be highly beneficial for students from traditionally underrepresented populations and first generation college students.

### Producing Readiness Of Diverse University Cohorts in Education (PRODUCE)

UNC Charlotte is one of the eight schools in the University of North Carolina system participating in the Louis Stokes Alliance for Minority Participation (LSAMP) National Science Foundation Grant to: (1) improve the quality of the learning environment for underrepresented students in science, mathematics, engineering and engineering technology; (2) increase the number of underrepresented students graduating with degrees in science, mathematics, engineering and engineering technology; and (3) develop and implement effective techniques of attracting talented underrepresented students who would otherwise not choose science or engineering as a career. PRODUCE participants receive faculty and peer mentoring, peer tutoring, opportunities to attend professional meetings/conference, internships, and scholarships.

### Building Better Brothers (B3)

B3 is an academic and social support program designed to increase the retention and graduation rates of male students from traditionally underrepresented populations. B3 assists program participants in becoming graduates with high academic achievement and preparedness for post-graduation life. Students complete an application of interest and select a variety of educational and social programs in which to participate throughout the year.

For more information about Multicultural Academic Services, visit [mas.uncc.edu](http://mas.uncc.edu).

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## University Career Center

The University Career Center *for Work, Service, and Internships* (UCC) offers comprehensive career services designed to assist undergraduate and graduate students in all stages of career development. Each student has a specific career advisor (based on the student's major and including undeclared majors). Career advisors assist students with exploring majors and careers, gaining experience, conducting job and internship searches, and transitioning after graduation. In addition to individual appointments and group workshops, the UCC hosts career fairs and events throughout the year and provides a host of resources online at [career.uncc.edu](http://career.uncc.edu). UCC staff collaborate with academic colleges to coordinate experiential learning, and career advisors teach career-related sections of freshman and transfer seminars. The UCC offers the following programs.

### Part-Time Employment Off-Campus

The UCC's Job Location and Development (JLD) Program assists students in obtaining off-campus jobs including part-time, summer, temporary/seasonal, and full-time (non-degree). Job listings may be viewed online in Hire-A-Niner and often include career-related positions in various fields.



### Experiential Learning Programs

The majority of UNC Charlotte students (over 90%) are expected to and do participate in University-sanctioned experiential learning programs. Opportunities are available for both undergraduate and graduate students to receive course credit, transcript notation, or other recognition for supervised experiences in public and private agencies within the community, nationally, and internationally. These opportunities are offered through experiential learning programs including over 670 courses involving clinical rotations, cooperative education, internships, 49erships, and practicums. For full description of related courses, see the Course Descriptions section of this *Catalog*.

### Cooperative Education

This career-related professional program is available to students in the Colleges of Liberal Arts & Sciences, Business, Computing & Informatics, and Engineering. Participants must be enrolled full-time in an undergraduate degree program, and have a cumulative GPA of at least 2.5, and complete course requirements specified by their department. Transfer students must complete 12 hours at UNC Charlotte before applying to the program. Co-op students work two to three semesters either part-time or full-time (depending on college requirements) with an employer in a paid work experience. Participants receive transcript notation, not academic credit.

### 49ership Program

The University Career Center sponsors a non-credit

internship called a 49ership. Program participation is especially valuable for students who want career experience and do not have an internship option through their academic major (see Academic Internships below). Full-time undergraduate students may participate in the program after completing 30 credit hours at UNC Charlotte provided they have a cumulative GPA of 2.0 or above; full-time graduate students must complete nine credit hours in their graduate program and have a cumulative GPA of 3.0 or above. (Transfer students must successfully complete 12 credit hours at UNC Charlotte to be eligible.) Both a minimum of 5 weeks and a minimum of 80 work hours over one semester are required to complete the program. Fall and Spring 49erships are part-time. Summer 49erships may be full- or part-time. Employers, as well as career advisors, assist students in working toward learning objectives and will complete an evaluation on each student at the end of each term. While the 49ership Program does not offer academic credit, it is noted on the student's transcript, and students pay a course registration fee. Approval for enrollment must be arranged before the student begins the work experience. Participating employers have included Carolinas Medical Center, the District Attorney's Office, General Electric, Walt Disney World Co., Duke Energy, Vanguard, Transamerica, and Crisis Assistance Ministries. Fifty to seventy percent (50-70%) of the positions in this program are paid.

### Academic Internships

Some academic departments award students credit for completing relevant internships. Students are encouraged to check with their academic department for further information and academic eligibility requirements.

### Service Opportunities

The University Career Center offers service opportunities for students through 49erships in nonprofit and government agencies and organizations, which enable students to gain career-related and community service experience while learning about related social, civic, human service, and political issues. Students may also participate in service opportunities through NC Campus Connect and the Volunteer Outreach office.

### Job Shadowing Program

The Job Shadowing Program provides one-on-one and group shadowing experiences that give students the opportunity to "shadow" professionals in a career field of their choice. Students are able to explore career options and academic interests by conducting informational interviews and observing professionals in various fields, many of whom are alumni. The shadowing experience may include a brief visit or can last for one day or longer, depending on the schedules

of the students and professionals.

### University Professional Internship Program

The University Professional Internship Program (UPIP) offers paid on-campus internships to full-time sophomores, juniors, and seniors. Internships are designed to provide professional knowledge and skill development consistent with the student's major/career goals. Students work through their home academic department for approval of academic credit for their internship or through their career advisor for 49ership (non-credit) transcript notation. UNC Charlotte faculty and administrators serve as mentors to interns, with each internship paying \$10 per hour for 10-15 hours per week during the Fall and Spring semesters.



### University Center for Academic Excellence

Designed to improve academic performance and foster meaningful learning experiences, the University Center for Academic Excellence (UCAE) provides services, programs, and resources to help students develop and refine thinking skills, utilize self-management skills, and learn course material more efficiently while earning higher grades. UCAE collaborates with various colleges and programs on campus to promote the success of undergraduate and graduate students, including teaching the Academic Success Seminar (UCOL 1300). All services are free to enrolled UNC Charlotte students. UCAE offers the following programs and services.

### Learning Commons

The Learning Commons is a place students can come to study in a welcoming environment with academic support help only a few steps away. Services include: (1) Personal Consultations regarding academic issues; (2) diagnostic assessment of learning styles and study habits/attitudes; (3) computers and pay-for-print services; and (4) a library of resources including books, DVDs, and printed handouts outlining successful

study/learning strategies.

## Tutorial Services

Well-trained undergraduate provide free tutoring to University students in a variety of disciplines. Tutoring is primarily in mathematics, sciences, business, and foreign languages and emphasizes both content mastery and learning skills development. Tutors are selected based on their competence in the subject area, faculty endorsements, and their effective interpersonal skills. Tutorial Services at UNC Charlotte has been nationally certified through the College Reading and Learning Association at Level III.



## Supplemental Instruction (SI)

SI assists students in historically difficult courses, among which are biology, chemistry, physics, engineering, mathematics, business, and the social sciences. In weekly scheduled group study sessions, trained student SI Leaders help peer students refine the unique skills necessary for doing well in the target course. Data show that students regularly participating in SI average significantly higher final course grades compared to non-participants.

## Students Obtaining Success (SOS)

SOS is a peer mentoring program for students on academic probation at UNC Charlotte. SOS is designed to help students identify strengths and causes for academic difficulty and to develop skills to improve grades and return to good academic standing. Any student on academic probation is eligible to register for the SOS program. Each participant is assigned a well-trained undergraduate peer mentor for support and guidance. The program lasts for one semester and is tailored to help individuals with specific needs and issues. Participants must commit to meeting weekly with a peer mentor. The SOS program has been nationally certified through the College Reading and Learning Association at Level II, Advanced Mentor.



## Academic Skill Development

A wide variety of workshops and classroom presentations are offered each semester on topics that help students achieve academic success. These interactive workshops are led by staff and graduate students on-site and across campus. Topics include: *Test Prep, Time Management, Goal Setting, Effective Note Taking, Motivation, Learning Styles*, and more.

## Building Educational Strengths and Talents (BEST)

BEST supports first-generation college students, along with students from other select populations, in obtaining their academic goals. We create an environment in which Achievers (students in BEST) learn to adapt to the culture of higher education and access useful resources. BEST provides secondary advising, tutoring, coaching, free printing, technological resources such as a laptop loan program, exposure to unique cultural events, and leadership opportunities. This federally funded Student Support Services program places a special emphasis on the first-year experience.

For additional information on these programs and services offered by the UCAE, please visit [ucae.uncc.edu](http://ucae.uncc.edu).

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# Auxiliary Services

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<http://aux.uncc.edu>

In support of the University's educational mission, Auxiliary Services is responsible for providing goods and services the campus community needs. This includes:

- multi-function 49er ID Card system
- dining venues and meal plans
- on-campus bookstore
- printers and copiers
- parking and transportation services
- mail delivery
- ATM stations and vending machines

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## 49er ID Card

Every student's 49er ID Card displays a photo, name, and a unique student ID number (different from a Social Security number for privacy reasons). The 49er ID Card proves that the student is a member of the campus community and entitled to certain services.



### A 49er ID card allows access to:

- campus housing
- campus activities and programs
- athletic events and recreational facilities (i.e., Student Activity Center, Belk Gym)
- computer labs
- Student Health Center

### The 49er ID card also serves as a:

- meal plan card
- library card

### And holds funds for:

- Optional Dining Account
- 49er Account

### To get a 49er ID card, students need:

- 1) One valid proof of identification such as a driver's license, State Issued ID or Passport
- 2) Proof of university status such as acceptance letter, class schedule, proof of registration or tuition bill
- 3) Student ID number that begins with 800 (assigned at acceptance; appears on the acceptance letter).

Entering freshmen and transfer students will have their 49er Card made during SOAR. A card may also be obtained at:

#### 49er Card Office

Auxiliary Services Building  
Hours: Monday –Friday, 8 a.m. – 5 p.m.  
704-687-7337 or 1-877-497-4949

OR

#### ID Card Office

Student Union, Room 127  
Hours: Monday – Friday, 8 a.m. – 5 p.m.  
704-687-7040

The 49er ID card can only be used by the student to whom it was issued. Misuse of the identification card will result in disciplinary action. There is a \$15 fee to replace lost/stolen identification cards. For additional details, visit [aux.uncc.edu/49er](http://aux.uncc.edu/49er).

## 49er Account

The 49er Account automatically resides on the UNC Charlotte 49er ID Card. Students simply make a deposit and the account is instantly activated. The 49er Account is accepted in campus vending machines, for printing and copying (including services from the Copy Center), residence hall laundry machines, the Barnes & Noble at UNC Charlotte bookstore, and purchases from the campus Post Office, NinerTech computer store, Campus Salon, Union Station, dining venues, campus convenience stores and game/event concessions.

The 49er Account spends like cash for products and services all over campus but can't be used for cash advances or purchases off-campus (although many local businesses offer discounts with proof of UNC Charlotte ID). A 49er Account is safe, secure, can't go into negative balance, and won't incur fees like overdraft charges.

There are four ways to deposit funds onto the 49er account; online at [aux.uncc.edu](http://aux.uncc.edu), in person at one of

our two locations, the 49er Card Office located in the Auxiliary Services Building or the ID Card office located in the Student Union, by mail, or via one of four campus VTS (value transfer) machines. VTS machines are located on the first and second floors of the Atkins Library, the Barnard Computer Commons, and the Residence Dining Hall.

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## Bookstore

Located in the Student Union, Barnes & Noble at UNC Charlotte offers: new and used textbooks and textbook rental (with online ordering and pre-pack services); general interest, “best sellers” and children’s books; school supplies; computer software; greeting cards and gifts; and the largest selection of UNC Charlotte apparel, gear and merchandise available. More information is available online at [aux.uncc.edu/bookstore](http://aux.uncc.edu/bookstore) and [uncc.bncollege.com](http://uncc.bncollege.com).



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## Copy Center

UNC Charlotte has a pay-for-print system in most computer labs and in the Atkins Library. A 49er Account is required to pay for print jobs in these areas. The 49er Account may also be used at the REPROS copy center for other copying services such as binding, wide-format printing and other copying and presentation services. REPROS offers full-service and self-service reprographics, and is located on the lower level of the Prospector building. For details, visit [aux.uncc.edu/copy](http://aux.uncc.edu/copy).

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## Dining on Campus

UNC Charlotte offers a variety of dining locations across campus. Students with meal plans enjoy the all-you-care-to-eat variety of food served in the **South Village Dining Hall** and **Crown Commons**. SoVi dining is located near high rise residence halls; Crown Commons is on the second level of the Student Union.

**Crown Commons** and **SoVi** are designed to serve meal plan students and anyone else who loves a satisfying meal limited only by their appetite. They offer something to please every taste and mood. Made-to-order choices include: pizza, deli, grilling station, and soup and salad stations. International/ethnic dishes, vegan/vegetarian entrées, a “home cooking kitchen,” waffle bar, dessert station, and cereal bar.

**Bistro 49** in the Student Union offers a sit-down, table service luncheon experience. Bright ambience, an open-kitchen and a nouvelle cuisine menu are just the beginning. Menu changes seasonally.

**Main Street Market** in the Cone University Center is a weekday lunchtime spot with Bojangle’s Chicken and Biscuits, Subway, Use Your Noodle (made-to-order noodle bowls), Sushi with Gusto fresh sushi, Au Bon Pain soups, and grab-and-go salads and sandwiches, soft drinks, yogurt, juices, and coffee.

**Outtakes** in the Student Union offers a deli counter for made-to-order sandwiches and “quick cuisine” like grab-and-go sandwiches, salads, snacks, beverages and more.



**Library Café** and **Fretwell Café**, located in Atkins Library and Fretwell respectively, proudly brew Peet’s Gourmet coffees and teas, serving all your favorite coffee-shop drinks along with fresh bakery goods, sandwiches, smoothies, soups-of-the-day, and a large selection of bottled specialty juices, energy, and soft drinks.

**Union Square** on the main level of the Student Union features popular, national brands such as Wendy’s, Einstein Bros. Bagels, Starbucks, and Mamma Leone’s.

**Prospector** (near the McEniry/Friday/Kennedy/Smith academic core) is where you’ll find favorites such as a full menu Chick-fil-A, Feisty’s franks + fries, Salsarita’s, Mamma Leone’s, Grill Nation, Mondo Subs, a salad bar, and large selection of grab-and-go foods like sushi rolls, pre-made salads, yogurt, fresh fruit, and snack foods.

**Orbis Grille at PORTAL** (CRI campus in PORTAL building) offers an extensive menu of fresh foods and

hot, healthy cooking on an Evo grill. Grab-and-go items, snacks, and beverages served also.

For additional details, visit [aux.uncc.edu/dining](http://aux.uncc.edu/dining).

## Mail and Package Services

Mail and Package Services is a fully operational Postal Contract Station located on the lower level of Prospector, capable of services equivalent to that of a U.S. Post Office. For additional details, visit [aux.uncc.edu/mail](http://aux.uncc.edu/mail).

Offers a full range of Mail and Package Services including:

- Express Mail-Domestic & International
- Priority Mail-Domestic & International
- Registered Mail
- Certified Mail
- Certificates of Mailings
- Signature/Confirmation Delivery
- Campus mail box rental
- Post Cards
- Bulk Mail Services
- Delivery to residence halls



## Union Station

UNC Charlotte's address for shipping, U.S. Passport processing, and graphics services. At Union Station, you'll find:

- Multi-carrier Package Shipping Service
- Shipping Supplies
- Official U.S. Passport Acceptance Station
- Campus Box Rental
- Kodak® Photo Kiosk
- Self-service Copier
- Fax Services
- Graphic Services (*vinyl banners, signs, wide-format printing*)
- Balloons

## Parking and Transportation Services

Parking and Transportation Services (PaTS) is charged with the responsibility of providing parking and transportation service for UNC Charlotte students, faculty, staff, and visitors.

## Parking Permits

The PaTS office is located in the Facilities Operations/Parking Services Building (#23 on the campus map). All campus parking requires the purchase and display of a University parking permit or payment at meters or in the visitor decks. Parking permits may be purchased online at [pats.uncc.edu](http://pats.uncc.edu). Permits do not guarantee proximity parking, nor do they reserve a specific parking space in any lot or deck.



## Permit Types

- **Annual Full-time Commuter (C)**, on-campus **Resident (R)**, and **Faculty/Staff (FS)**
- **Two-day permits** are available by the semester to commuters whose class schedule requires them to be on campus just two days per week. Two-day permits are only valid on specified weekdays.
- **Night permits** are valid only after 3 p.m. and are available by the semester

A limited number of reduced fee permits are available for commuter students and staff who are willing to park in a remote lot. Discount Lot 6A (at the corner of John Kirk and Cameron) has a shuttle stop which provides service to center campus and CRI. Discount Lot 27 is a "walk-in lot" with no shuttle stop within 1/10 mile.

Complete permit information including prices, permit types, and where each permit allows you to park; parking rules and regulations; and a PDF of the *Campus Parking Information Guide* are available online at [pats.uncc.edu](http://pats.uncc.edu). For information on fees for motor vehicle registration and parking, see the section on "Financial Information" in this *Catalog*.

## Campus Shuttle

Shuttle routes operate Monday through Thursday from 7 a.m. to 10 p.m., and Fridays from 7: a.m. to 6 p.m., during Fall and Spring semesters when classes are in session. Shuttle



buses are provided by PaTS through an agreement with Charlotte Area Transit System (CATS). Shuttles serve main areas of campus, providing safe, reliable, ADA-compliant transportation. Route maps at [pats.uncc.edu](http://pats.uncc.edu).

## NextRide

UNCC NextRide is a free smartphone app that provides real-time transportation tracking information for campus shuttle buses and SafeRide vehicles. The app is compatible with Apple, Microsoft, Android, and Blackberry operating systems, phones or tablets and is available [nextride.uncc.edu](http://nextride.uncc.edu).



## SafeRide

SafeRide offers disability transportation service by day and evening safety and disability transportation at night. SafeRide operates whenever the University is open.



**Monday through Friday** from 7:30 a.m. to 6:00 p.m., SafeRide provides service throughout the inner core of campus for persons with temporary and permanent mobility disabilities. Riders must register for the service through the Office of Disability Services at 704-687-4355. Forms are available on the SafeRide website at [saferide.uncc.edu](http://saferide.uncc.edu) and at the Office of Disability Services or the PaTS Office.

**Seven days a week** from 6:00 p.m. to 2:30 a.m., SafeRide provides an ADA accessible safety transportation service, in conjunction with the Campus Shuttle Service. SafeRide transports to academic buildings, housing areas, parking lots, and parking decks within the UNC Charlotte Campus. SafeRide evening schedules and route information at [saferide.uncc.edu](http://saferide.uncc.edu) or track SafeRide evening service vans via the UNCC NextRide app or [nextride.uncc.edu](http://nextride.uncc.edu).

For additional information, contact the PaTS Office at 704-687-0161.

## Public Transportation

The **Charlotte Area Transit System (CATS)** provides bus transportation to and from campus via route 11U (from the Uptown transportation center and North Tryon Street and back) and route 29 (with service down to Cotswold and SouthPark malls). Service is provided on a regular schedule, connecting with established routes throughout the city.



**CATS transportation passes are available for purchase at the Parking Services office;** with a UNC Charlotte ID, and there's a 10% discount. Passes are sold as: Ten Ride Local Pass; Weekly Pass; Local Monthly Pass; Express Monthly Pass. Passes are sold on a cash-only basis.

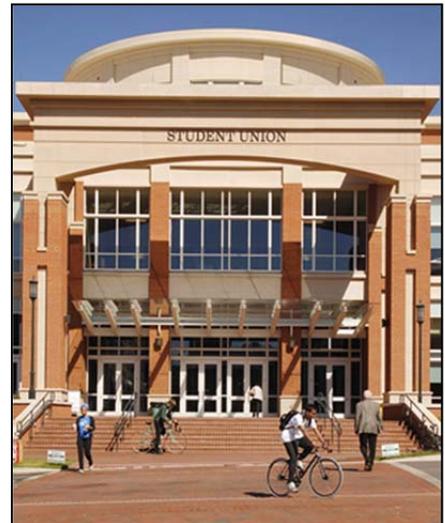
Brochures containing detailed information regarding routes, schedules, and fees may be obtained in the PaTS Office, or by calling the Charlotte Transit Authority at 704-336-3366. Fees are set by Charlotte Transit and are subject to change. Maps for CATS can be found online at [charmeck.org/departments/CATS](http://charmeck.org/departments/CATS).

## Student Union

The Student Union is designed to be the epicenter of campus activity, serving students, faculty, staff, alumni, and visitors. The Union provides services, programs, events, meeting spaces, informal gathering spots and a large variety of convenient services.

UNC Charlotte's Student Union is a 196,000 square ft., three-story "living room" that includes: a retail food court (with Wendy's, Starbucks, Mamma Leone's, Einstein

Bagels and Energy Zone; Bistro 49 (table-service restaurant), Crown Commons dining (an all-you-care-to-eat variety-fare venue), Norm's game room lounge; a 210-seat movie theater; a multi-purpose



area that converts from several soft-walled meeting rooms to a ballroom to a banquet hall that can seat over 600; the Barnes & Noble at UNC Charlotte bookstore, Outtakes convenience store, NinerTech store (providing educational pricing on Apple products and PC-compatible software); a hair salon; Union Station (shipping, U.S. Passport processing, and graphic services); student organization and activity offices and meeting space; a piano lounge; art gallery and study spaces with Wi-Fi. "Discover the riches within" at [studentunion.uncc.edu](http://studentunion.uncc.edu).

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# Dean of Students

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<http://dso.uncc.edu>

The Dean of Students Office is a department within the Division of Student Affairs and serves as a key link between students and other areas of campus life. Various programs are sponsored by the Dean of Students Office to promote opportunities for learning and growth during a student's college experience. The staff is responsible for advising and promoting the following programs and services: Fraternity and Sorority Life, Minority Student Support Services, New Student Orientation, Off-Campus and Volunteer Outreach, Latino Student Services, Student Conduct, Veteran Student Services, and Parent and Family Services. In addition, the Dean of Students Office assists students with requests for academic accommodations, withdrawals from the University for extenuating circumstances, and provides support for any student who has a grievance or concern about the University. The office also coordinates and assists with the settlement of academic and behavioral misconduct charges against individuals and student organizations.

Each of the programs and services listed below provides excellent opportunities for students to incorporate classroom knowledge into practical situations. The main Dean of Students Office suite is located in 217 King. For more information, visit [dso.uncc.edu](http://dso.uncc.edu).

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## New Student & Family Services

### New Student Orientation

SOAR (Student Orientation, Advising and Registration) occurs during the summer and immediately prior to the Fall and Spring semesters. This program provides the opportunity for new freshmen and transfer students to begin their transition to UNC Charlotte. Orientation workshops, testing, academic advising, and first semester course registration occur during SOAR. Visit online at [soar.uncc.edu](http://soar.uncc.edu).



### WOW! (Week Of Welcome)

WOW! (Week of Welcome) is a week-long event welcoming both new and returning students to campus. This program is a University-wide effort to especially welcome new students to campus and acclimate them to the many programs and services offered by the University. All students are invited to participate in WOW activities which include 49er New Year, dances, movies, prizes, cookouts, and other fun events. Visit online at [wow.uncc.edu](http://wow.uncc.edu).



### Minority Student Support Services

Minority Student Support Services is designed to assist and advocate for the needs of UNC Charlotte's under-represented populations. Through collaboration with a variety of offices on campus, the program focuses specifically on academic support, mentoring, social networking, ethnic and cultural development, leadership development, and personal growth.

### Latino Student Services

Provides a safe inclusive space where Latina/o students can build community, strive for academic and social success through peer to peer connections, as well as through staff support and advocacy. Family members of Latina/o students are provided with bilingual resources and support. The Latino Student Services office engages with the Charlotte Latina/o community by collaborating with various community organizations to promote college access and awareness.

### Student Advising For Freshman Excellence (SAFE)

SAFE is a peer mentoring program designed to help students academically transition through their first year of college. The SAFE program connects new students with upper-class mentors who serve as role models during the first year of college and provide academic and student development programming to address needs in a holistic manner. Visit online at [safe.uncc.edu](http://safe.uncc.edu).

### Off-Campus Outreach

Off-Campus Outreach supports students by providing informational resources about off-campus living and by working with campus departments to encourage University-wide support systems for off-campus

students. Students who decide not to live in the residence halls can choose from a variety of apartment complexes, rental properties, or condominiums located near campus. Off-campus Outreach programs include Vendor Fairs, an on-campus Locker Rental program, regular meetings with University-partnered apartment complexes, and safety presentations. Visit online at [dso.uncc.edu/offcampus](http://dso.uncc.edu/offcampus).

### Parent and Family Services

Parent and Family Services is designed to provide communication between the University and family members of UNC Charlotte students in order to support student success, generate goodwill for the University, and promote an appropriate role for families within the campus community. Through collaboration with a variety of departments on campus, Parent and Family Services provide resources to keep families connected to the University and equipped to support their student throughout the college experience.

### Niner Nation Family

Niner Nation Family is intended to strengthen the relationship with parent and family members, and increase communication to actively involve them in the life of UNC Charlotte. Niner Nation Family membership is open to all parents and family members of current students. Family members can join by contacting the Niner Nation Family Office at [parents@uncc.edu](mailto:parents@uncc.edu) or visiting the website at [parents.uncc.edu](http://parents.uncc.edu).



### Veteran Student Services

Veteran Student Services coordinates support services for military veteran and dependent students such as assistance with University administrative support, collaboration with Veterans Affairs counseling and healthcare services, veteran-friendly employment, mentoring, and veteran service organizations. In addition, the Office of Veteran Student Services is responsible for administering and certifying veterans benefits through the Veterans Administration Office. Finally, the office plans events on campus in honor of our nation's service-men and women, such as observances for Veterans Day, Memorial Day,

POW/MIA Recognition Day, and 9/11 remembrance. Visit online at [veterans.uncc.edu](http://veterans.uncc.edu).

### Volunteer Outreach

Volunteer Outreach helps students find community service opportunities that match their interests and skills through connection with local non-profit agencies. A wide variety of service activities are available including issue-based programs that focus on topics such as education, hunger and homelessness, literacy, animals, alternative spring break, and mentoring. Volunteer Outreach also sponsors special events in which all UNC Charlotte students, faculty, and staff may participate such as American Cancer Society Relay for Life, Food Recycling Program, Volunteer Fairs, and MLK and Homecoming days of service. Visit online at [volunteer.uncc.edu](http://volunteer.uncc.edu).



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### Student Conduct

Student Conduct promotes personal responsibility and encourages civility, integrity and a sense of community among UNC Charlotte students. The purposes of the student conduct process are to (1) maintain an environment that supports and enhances the educational purpose of the University; (2) protect the health, safety, welfare, and property of all persons in the University community; (3) encourage appropriate standards of individual and group responsibility in the University community; and (4) foster the personal, social, and ethical development of members of the University community.

The desired outcome of the student conduct process is to provide an educational opportunity by which individuals or groups can recognize the consequences of their actions and be held accountable for their choices both in and out of the classroom. As part of their individual responsibility to the University community, all UNC Charlotte students are expected to be familiar with University Policy 406, The Code of Student Responsibility, and University Policy 407, The Code of Academic Integrity. Visit [studentconduct.uncc.edu](http://studentconduct.uncc.edu) for more details.

Staff members from the Office of Student Conduct serve as administrative advisors to the Judicial Branch of the Student Government Association (SGA).

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### Fraternity and Sorority Life

Fraternity and Sorority Life at UNC Charlotte consists of 38 fraternities and sororities founded upon the

principles of scholarship, leadership, community service and the formation of lifelong friendships through brotherhood/ sisterhood. Fraternities and sororities uphold these fundamental values in their pursuit of collegiate excellence, enabling all members to achieve their personal best. Fraternity and Sorority Life provides students with an opportunity to be a part of a large group with many diverse characteristics while sharing a common goal. The fraternities and sororities work together to provide a quality experience for anyone who joins via service projects, educational programs, and social activities. The experience the student gains from organizing and motivating people, planning and implementing projects and learning to give back what one has received can be an invaluable part of a college education. Membership recruitment for a fraternity or sorority primarily begins with each new semester. However, some organizations hold recruitment meetings throughout the year. Some of the many programs within Fraternity and Sorority Life include: the Greek Leadership Conference, Greek Week, Airband, Stepshow, and New Member Convocation. Visit online at [greeklife.uncc.edu](http://greeklife.uncc.edu).



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# Educational Resources

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## Computing Assistance

### Information and Technology Services (ITS)

Information and Technology Services manages the campus voice and data networks, centralized servers, University-owned computers, operating systems, and software to support teaching, learning, research, and business processes. The campus has a robust data network that connects over 500 servers and approximately 8000 computers. All educational buildings have wireless coverage and wifi has been expanded to cover many outdoor study areas to support students bringing their own device. ITS maintains and supports the University's core administrative systems, performs application development, and administers and supports all of the University's central server resources. ITS provides development, consulting, and support services for the University web presence, its portal (49er Express), and the learning management system (Moodle). ITS also provides facilities and services in support of the University's research mission. Visit [itservices.uncc.edu](http://itservices.uncc.edu) for more information about the department and resources available.



### Client Engagement

Client Engagement, within Information and Technology Services, works to ensure that students and employees have access to computer equipment, software, and information needed to support their general academic and professional efforts at UNC Charlotte. All current students and employees are provided with a NinerNET account that allows access to email, 49er Express, and the University network for their use while they are enrolled in courses, or employed, at UNC Charlotte. Client Engagement provides technical support through the IT Service Desks in Atkins Library and the Student

Union, an online helpdesk tool located at [helpdesk.uncc.edu](http://helpdesk.uncc.edu), and via phone at 704-687-5500. Visit [itservices.uncc.edu](http://itservices.uncc.edu) for more information.

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## Library/Research Assistance

The J. Murrey Atkins Library, the largest academic research library in the Southern Piedmont region, is proud to serve UNC Charlotte's significant scholarship endeavors. It is an accredited member of ASERL (the Association of Southeastern Research Libraries), with a fundamental goal of helping UNC Charlotte faculty and students do their research and academic work, better and faster.



### Research

The Library continues to aggressively grow its robust digital collections with access to over 55,000 electronic journals and about 500,000 electronic books, and maintains nearly 2 million volumes. Expert Subject Librarians are available for project and paper research help, citation assistance, instructional classes, Moodle support and much more. They can be reached via live chat, email, phone, in person at the Information Desk, and for one-on-one meetings involving deeper, subject-related study. Rare materials and archives are also accessible for physical and digital research in the Special Collections department.

### Services

The Library faculty and staff are committed to consistently reinventing library services that meet the changing dynamics of research needs and trends. Atkins' Digital Scholarship Lab (DSL) partners with faculty and graduate students in the use of digital and networked research tools to create, disseminate, and store new knowledge. The DSL can support the research process and projects through advising, digital tools, and a set of services



including data management, digitization and digital imaging, usability, and publication services.

### Facilities

There are 38 group study rooms available, including the Group Study Commons which offers collaborative and individual study spaces featuring comfortable furniture, tables, white boards, and computers. Wireless access is available on every floor; more than 250 public computer workstations (Macs and PCs) are available, and laptops can be checked out for 24 hours. Patrons enjoy the open food and drink policy, with the ground floor's Library Café offering a wide variety of choices.

The Library is open 24/5, Sunday-Thursday, during the regular semester, and 24/7 during finals. For more information, visit [library.uncc.edu](http://library.uncc.edu); [facebook.com/atkinslibrary](https://www.facebook.com/atkinslibrary); and/or Twitter @AtkinsLibrary.

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## Non-Traditional Academic Programs

### Extended Academic Programs

Recognizing that learning must be a lifelong activity, the University provides opportunities for adults to pursue their continuing education through degree-related studies and special non-credit programs. With staff dedicated to Professional Development as well as Corporate Training, Extended Academic Programs responds to the current and emerging workforce needs of companies, organizations, and industries in the region. Please visit [ExAP.uncc.edu](http://ExAP.uncc.edu) for specific information about the programs offered.



### Continuing Education

Non-credit courses, certificates, and exam prep programs are offered through the Office of Continuing Education. Online and classroom options are provided throughout the year in the fields of accounting, business analysis, business process management, engineering, healthcare, human resources, learning and development, paralegal, personal development, project management, and a variety of technology and computer software programs. The Office offers a variety of courses to prepare individuals to sit for various exams, including the ACT, SAT, GRE, GMAT,

MCAT, LSAT, and professional FE, PE, PHR, SPHR, and PMP® exams. The Office's Corporate Training staff design and deliver programs in-house to serve the employees of specific companies and organizations. The Office also offers academic enrichment camps for youth during the summer. Continuing Education staff are located at UNC Charlotte Center City. Visit [continuinged.uncc.edu](http://continuinged.uncc.edu) for more details.

### Distance Education/Extension

Through Distance Education/Extension, courses for academic credit are offered at off-campus sites and via the Internet to serve citizens who live beyond easy commuting distance of the campus. Options for delivery include sending a UNC Charlotte faculty member to an off-campus location to teach a course in person, delivering courses completely online via the Internet or via Hybrid delivery combining face-to-face and online delivery of instruction. The Office also has responsibility for the coordination and administration of Summer School, which includes courses offered on the campus, at off-campus sites, and online. Visit [distanceed.uncc.edu](http://distanceed.uncc.edu) for more details.

### Adult Students and Evening Services

The Office of Adult Students and Evening Services (OASES) serves as a principal resource for nontraditional students, and offers extended hours to serve these students. Services include general education advising, academic success workshops, referrals, parking decal pick-up, and assistance with processing various forms. Students can pick up and/or drop off information to be delivered on campus. Programs include adult student scholarships, adult student orientation, the Adult Mentoring Program for Students (AMPS), the Alpha Sigma Lambda Honor Society, the Pinnacle Honor Society, and the 49er Finish and 49er Readmit programs. Visit [oases.uncc.edu](http://oases.uncc.edu) for detailed information, including office hours.

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## University Writing Program

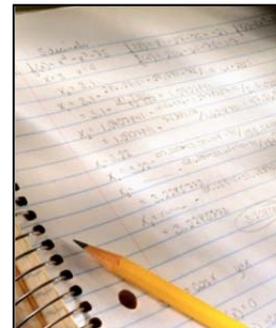
First-Year Writing (FYW) and the Writing Resources Center (WRC) constitute the University Writing Program, a free-standing academic program of the College of Liberal Arts & Sciences, comprised of pedagogical and research activities related to the development of writing ability as well as to disciplinary inquiry in the fields of rhetoric and composition. Visit [writing.uncc.edu](http://writing.uncc.edu) for details.

### First-Year Writing

The First-Year Writing program supports a spiral model of literate development. The program encourages students to become aware of their own literate development and practices so that they might rhetorically read and compose print, visual, and

multimodal forms of writing more intentionally at the university and beyond. Students learn that various forms of writing all have their own conventions that can be adapted to serve different purposes. Writers are taught that sophisticated writing requires sophisticated understanding of contexts, tools, and audiences.

Learning is fostered by continually encouraging students to critically reflect on their own composing practices, assumptions, and goals with writing. Writing includes inquiry, reflection, and assumes a process approach. Students use writing to learn and develop their compositions by collaborating with peers and their teacher. They also learn how to conduct research, organize evidence, recognize and adapt writing conventions, and revise work to refine their ideas and respond to reader feedback.



### Writing Resources Center

The Writing Resources Center (WRC) provides one-on-one consultation on writing and writing projects to students in all disciplines and at all levels. Students from first-year to graduate are assisted in an active, collaborative learning environment. Faculty and staff may also take advantage of the WRC's one-on-one consultations. The Center includes computing facilities and a variety of writing-related instructional materials.

Staffed by trained undergraduate and graduate students from a variety of disciplines, the WRC offers teaching experience and leadership opportunities to tutors, many of them future educators, as they develop their own writing abilities and interpersonal skills. All writing assistants participate in ongoing professional development in theory, research, and practice of writing pedagogy. In addition to ongoing professional development and research, WRC staff also give presentations and host workshops across the University on topics such as disciplinary writing, avoiding plagiarism, documenting sources, peer response, and revision strategies.

As a University-wide service invested in the teaching and learning of writing in every discipline, the WRC coordinates its efforts with other academic support services. The Center participates in University policy-making concerning writing and joins in the design and implementation of campus writing initiatives.

To schedule an appointment or to learn more, visit [wrc.uncc.edu](http://wrc.uncc.edu).

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# Environmental Facilities and Services

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## Botanical Gardens

The UNC Charlotte Botanical Gardens, located on campus, consist of the McMillan Greenhouse, the 7-acre Van Landingham Glen, and the 3-acre Susie Harwood Garden. The mission of the gardens is to promote the knowledge and appreciation of plants for educational, environmental, and aesthetic purposes. The gardens were begun in 1966 by the late biology professor emeritus, Herbert Hechenbleikner, to serve as a living classroom and have evolved into a multifaceted campus and public resource. Collections include orchids, carnivorous plants, succulents, native plants, tropicals, and hardy outdoor trees, shrubs, wildflowers, and ferns. The outdoor gardens are open seven days a week, and the greenhouse is open Monday through Saturday, 10-3, and Sundays from 1-4. Students and the public are invited to visit, free of charge. More information can be found online at [gardens.uncc.edu](http://gardens.uncc.edu).



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## Recycling

Recycling services are coordinated by the Office of Waste Reduction and Recycling within Facilities Management. The University's recycling program, initiated by students in 1990, currently recycles 38% of the solid waste generated on campus, including approximately 40 different materials. Residence halls are equipped with outdoor recycling centers, recycling containers in trash rooms or lobbies, and a small recycling bin in each room. Toner cartridges, aluminum cans, plastic and glass bottles, computer paper, newspapers, magazines, all plastics except #6, and cardboard can be recycled at the residence halls. In addition to the above materials, Styrofoam peanuts, transparencies, and hard and soft back books can be recycled in the academic and administrative areas.

*Note: After students fill the recycling bin provided in their rooms, they should bring the recyclables to the recycling container located in the building's common area.*

The recycling program provides educational sessions for students, faculty, and staff. The program coordinates and sponsors the annual UNC Charlotte Earth Day Environment Festival, the biannual Campus Clean-Ups, and Adopt-A-Spot, along with various educational programs throughout the year. The Office of Waste Reduction and Recycling offers students a chance to actively embrace their environmental responsibilities and to demonstrate concerns through volunteer and employment opportunities. To volunteer, contact the environmental educator at 704-687-0606.



These and other waste reduction and recycling programs help UNC Charlotte in its effort to meet North Carolina's 40% waste reduction goal. For more information about UNC Charlotte's waste reduction and recycling activities, view the website at [facilities.uncc.edu/recycling](http://facilities.uncc.edu/recycling).

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# Health, Wellness, and Counseling Services

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## Student Health Center

The Student Health Center's mission is to promote healthy students by providing health care, education and outreach services. It provides primary medical care, disease prevention, health education, wellness promotion, and various specialty services; including allergy injections, immunizations, gynecology, physical therapy, and HIV screening to all enrolled UNC Charlotte students. The Student Health Center is staffed by a team of physicians, physician assistants, and nurse practitioners. The Student Health Center also provides a full-time psychiatrist and a registered dietician. The pharmacy fills prescriptions from outside physicians as well as the Center's own providers.

The Student Health Center functions by appointment; this eliminates long waits and assists students in scheduling medical services around class schedules. However, walk-ins are accommodated for acute care or injuries, and will be seen according to severity.



The Student Health Center also provides nursing advice for students through UNC HealthLink when the Student Health Center is not open, including weekends and holidays. HealthLink is an after-hours nursing phone service provided by UNC Medical Center. Seriously ill students and emergencies may be referred to local hospitals or other appropriate medical facilities. There are a number of urgent care centers and a major hospital within 5 miles of UNC Charlotte. More information about HealthLink, local urgent care

centers, and nearby hospitals is available on the Student Health Center website.

The student health fee covers many of the costs for services. Additional fees are charged for x-ray, pharmacy, laboratory, and gynecology services, injections, and special procedures. Fees for service may be paid by cash, check, credit card, or transferred to the student's University account. The Student Health Center does file insurance for those students who have the Student Health Insurance policy only. Fees are subject to change. For more information, visit the Student Health Center website or call 704-687-7400.



Students are required to either provide proof of insurance or purchase a University Student Health Insurance Plan. All students will be charged the semester fee for the University Student Health Insurance Plan. However, a waiver process is in place for students to provide documentation of their proof of insurance to refund this fee. The waiver process can be found online and through hyperlinks provided in University emails. Full details may be found online at [studenthealth.uncc.edu](http://studenthealth.uncc.edu).

North Carolina law requires students to have proof of immunizations. These must be provided to the Student Health Center upon registration. Students whose immunizations records are not complete are subject to being withdrawn from their classes. Please see "Immunization Requirements" in the Admission to the University section of this *Catalog* or visit [studenthealth.uncc.edu](http://studenthealth.uncc.edu) for more information.

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## Counseling Center

The Counseling Center at UNC Charlotte supports the academic, personal, and interpersonal development of UNC Charlotte students by providing short-term individual and group counseling; consultation for faculty, staff, parents, and students; and educational programs to the campus community. Consistent with the academic mission of the University, the Center also serves as a training site for graduate students in psychology and counseling and encourages scholarly activity and professional development of staff.

Counseling provides an opportunity for individuals to learn to make better decisions, improve personal skills,

develop increased confidence, overcome blocks to personal effectiveness, and acquire a keener awareness and appreciation of their needs and the needs of others. In a personal interaction with a counselor, a student is helped to explore and express feelings, examine beliefs and ways of thinking about the world, reflect on patterns of behavior, and work toward making healthy changes.

For many students, relationship or other developmental issues are central concerns. Others may be experiencing specific psychological problems such as depression, anxiety, eating disorders, use of alcohol and other drugs, or difficulties in adjustment.

All currently enrolled students are eligible for an initial assessment. This first session helps both the student and counselor decide how Counseling Center services might best serve a student's needs. After the first session, follow-up services may consist of individual or group counseling at the Counseling Center and/or a referral to an on-campus or off-campus service. Information shared by student clients is confidential in accordance with ethical guidelines and the laws of the state of North Carolina.

Outreach and consultation are important services provided by the Counseling Center. Staff members are available to consult with faculty, staff, parents, and students who have concerns about a student. Outreach activities, usually focusing on some aspect of personal, interpersonal, or group development, include programs conducted outside the Counseling Center to meet the needs of a class, group, or organization.

Initial counseling appointments may be arranged by visiting the Counseling Center at Atkins 158 or by calling the Center at 704-687-0311. More information about the Counseling Center and its services can be obtained by visiting [counselingcenter.uncc.edu](http://counselingcenter.uncc.edu).



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# Housing and Residence Life

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<http://housing.uncc.edu>

University towers, suites, and apartments offer students a variety of living arrangements.

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## Residence Halls

Three tower halls house a combination of either two students in each room or single rooms. Each room is equipped with dressers, study desks, chairs, and closets or wardrobes. Newly renovated Holshouser Hall also has two bedroom four person suites on each floor. Each of these suites has a den and a bathroom in each unit. Each floor has a central lounge, plus study and seminar rooms. Two elevators service each air-conditioned building. Each building also contains an office for the full-time professional staff (Residence Coordinator), student mail boxes, a vending area, a lounge, and a laundry room. A meal plan is required in the tower halls.



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## Suites

Dependent upon the building, single bedroom options are available in one-, two-, three-, and four-bedroom units. Double bedroom options allow four residents to live together with two occupants sharing each bedroom. All suites have a shared den area and bathroom in each unit. Laurel Hall is a new freshmen building scheduled to open Fall 2015 semester that will offer both single and double bedroom options. All buildings housing the suite communities also require a meal plan.

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## Apartments

On-campus apartments offer students a more private living environment and require a more self-reliant

lifestyle. Most apartments are four-bedroom units, with one student assigned to each bedroom. The four students share a bathroom area and kitchen, complete with appliances and a living/dining space. Belk Hall offers a limited number of one-bedroom apartments in addition to the traditional four-bedroom apartment units. A meal plan is optional for upper class students, allowing students the experience of buying and preparing their own food, if they so desire.



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## Greek Village

Greek Village houses up to thirteen fraternities, sororities, and, in some cases, independent students. Each house has a chapter/living room and kitchen for common use and holds 28 or 14 students.



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## Summer Housing

For information about summer housing, please contact the Housing and Residence Life Office.

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## Applying For Housing

Students who plan to live on campus should apply as soon as possible, as assignments are made according to a combination of factors including: date of completed application, community preferences, roommate requests, space availability, class year, and building/room preferences. Application for housing

may be made online at [housing.uncc.edu](http://housing.uncc.edu) following the student's admission to the University. For new student applicants, a \$200 deposit is required with the application in order for it to be considered complete.

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## Accommodations for Students with Disabilities

*Housing facilities designed specifically for students in wheelchairs are available. Wheelchair users who receive confirmation of residential space have priority in assignment to these facilities as long as the University is able to offer space. It is extremely important that the housing application is received before all space is committed so that this priority for assignment to appropriate facilities can be exercised. Students utilizing wheelchairs may be considered for priority status on the waiting list on the basis of (1) the date of completed application and (2) the degree of utilization of wheelchair-equipped facilities as compared to the proportion of wheelchair students who apply.*

Assignment to a disability accessible housing space requires documentation of the disability and special needs in accommodations by the Office of Disability Services. Documentation must be provided to Disability Services when the housing application is submitted and no later than June 1. The University does not assume any responsibility for the provision of attendants for students with disabilities. Such arrangements are entirely the responsibility of the individual student and should be established well in advance of the time the services are to begin.

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# International Programs

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<http://oip.uncc.edu>

## Office of International Programs

The Office of International Programs (OIP) strives to strengthen international education at the University of North Carolina at Charlotte, as well as in the Charlotte community. On campus, it seeks to make international understanding and global awareness a fundamental part of the curriculum and an integral part of campus programming.

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## Campus International and Cultural Programming

Various internationally-focused campus events are sponsored independently by OIP and in cooperation with other departments on campus. Some examples include the annual International Festival, International Education Week, Study Abroad Fairs, International Women's Day, International Education awards for faculty and students, International Speaker Series, and activities associated with the Mu chapter of Phi Beta Delta Honor Society for International Scholars.

OIP continues to coordinate the International Enrichment Seminar, a first-year student course offered in University College with an emphasis on self and cultural awareness. OIP also oversees an on campus international living community, offering upper-class students the opportunity to live in two different residential environments while participating in intentional cultural learning activities.

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## Public Services

In addition to campus-based programming, the Office of International Programs seeks to initiate and respond to the international needs and interests of the community. Current programs include: (1) Great Decisions – an annual series of lecture/discussions during the months of February and March on key policy issues; (2) Cross-Cultural training – custom designed workshops that focus on appreciation for other cultures and development of skills in effective communications across cultures; and (3) International Festival – a “marketplace” style program featuring international



foods, music, and dance from more than 70 countries.

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## OIP Unit Operations

The Office of International Programs serves as a center of leadership and responsibility for the international role and mission of the University. It is comprised of related units that function together towards creating an international perspective in all facets of campus development. OIP includes OIP Administration, the Office of Education Abroad, the International Student and Scholar Office, the English Language Training Institute, and Intercultural Outreach Programs. In addition, OIP is the campus host for the World Affairs Council of Charlotte. Each unit of operation is briefly described below.

### OIP Administration

The Office of International Programs Administration unit (OIPA) includes the Assistant Provost for International Programs and other OIP administrative staff. OIPA provides overall leadership and direction for the Office of International Programs and its constituent units; develops, supports, and organizes a wide range of on- and off-campus programming; supports faculty development through various initiatives; guides the development of institutional agreements with foreign universities; and provides leadership and advice to promote campus internationalization efforts.



### Office of Education Abroad

The Office of Education Abroad (OEA) at UNC Charlotte is committed to providing quality, cost-effective educational opportunities for students to enhance their learning in an experiential environment abroad and to supporting faculty initiatives in creating such programs to supplement their curriculum objectives.

Students are encouraged to take advantage of the opportunity to have an educational experience through study or experiential learning abroad. OEA develops and maintains exchange relationships in multiple countries throughout the world and is an active member of the International Student Exchange Program (ISEP) which allows students access to additional programs from a worldwide framework of exchanges. Students have the option of year-long,

semester, summer, or short-term programs.

In addition to making progress toward their degree requirements, students have the opportunity to test theoretical principles in real-time, challenge their assumptions about different cultures and explore their own relationship with the global landscape.



### International Student and Scholar Office

The International Student and Scholar Office (ISSO) provides information, services, and programs that help international students and visiting scholars achieve their individual educational and personal goals and also fosters an appreciation for a culturally diverse learning environment in the larger UNC Charlotte community.

UNC Charlotte hosts a vibrant international community. Over 1,500 non-immigrant international students representing over eighty countries around the world study at UNC Charlotte. International students are supported through orientation, programming, individual advising, and assistance with immigration document processing. Similarly, international faculty receive one-on-one immigration advising and cultural adjustment support. Various workshops are offered as well for international and/or U.S. domestic faculty who wish to learn more about immigration matters or working with international students.

Programs to encourage international student and U.S. American student interaction are also supported through ISSO. Examples of ISSO programs include the International Coffee Hour, Friendship and Culture Exchange Program, and the International Club at UNC Charlotte.

### English Language Training Institute

The English Language Training Institute (ELTI), established in 1978, prepares international students for academic study at UNC Charlotte or other U.S. colleges and universities by introducing and refining the English language and cultural adaptation skills the students will need to succeed in their academic careers.

ELTI offers seven levels of English language instruction to over 200 students from more than 20 countries each semester. In addition to 20-24 hours of class each week, students visit academic classes, meet with U.S. conversation partners, and tour area schools and sites

of cultural interest. On average, students stay for at least two semesters.

ELTI also offers the International Instructor Language Support Program (IILSP), a support program for international faculty and teaching assistants at UNC Charlotte.



### Intercultural Outreach Programs

Intercultural Outreach Programs (IOP) develops a wide array of academic and professional development programs in conjunction with an intensive and structured immersion experience in U.S. American culture and language for international groups.

IOP also facilitates specialized faculty development programs and practical training for international interns. Each experience is custom-designed and integrated with experiential learning activities; cultural, social and recreational events; as well as opportunities for interaction with the Charlotte and University communities.

### World Affairs Council of Charlotte

The World Affairs Council of Charlotte (WACC) was founded in 1983 as an outreach program of UNC Charlotte and its Office of International Programs. By serving as a regional center for education and discussion of world affairs, WACC seeks to provide leadership for global thinking, believing that a broad perspective is necessary for effective competition in the global economy and for responsible citizenship in an increasingly interdependent political world. The WACC recruits internationally renowned speakers to address topics ranging from economics to globalization to foreign policy.



The World Affairs Council of Charlotte also serves as a

resource for the local school community, providing educational programming and scholarships. Each year, WACC funds nearly \$35,000 in grants and programs for teachers and students in support of their commitment to international education initiatives. Since 1996, the organization has directly impacted over 700 teachers and more than 70,000 students.



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# Performing Arts

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Within the College of Arts + Architecture, the Departments of Dance, Music, and Theatre serve the educational needs of students and the cultural needs of Charlotte and the University community. It is the mission of these three departments to prepare students for arts-related fields by integrating excellence in instruction and artistic creativity within a broad professional landscape.



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## Performance Venues

As UNC Charlotte's primary facility for the arts, **Robinson Hall** is where the weeks and months of planning, programming, and behind-the-scenes work give way to presentation to live audiences. Every production is an opportunity for students and faculty to investigate and understand by doing and a medium through which the arts illuminate, inspire, or confront.

The dynamic between audience and performer assumes a more urgent tone in the higher education setting of Robinson Hall. Public performances reinforce our role as a resource to the arts community in Charlotte. More than a venue, Robinson Hall offers a space to challenge preconceptions and present students, faculty, and audiences with other ways of seeing the world in order to stimulate and amplify community dialogue.

Within Robinson Hall are the **Anne R. Belk Theater** and the **Lab Theater**. The main stage space, the Anne R. Belk Theater, is a proscenium-style house which seats 340. Dozens of performance events take place in the theater over the course of an academic year. The theater's orchestra, mezzanine, and box seating offers patrons an environment that is both intimate and elegant. The flexible Lab Theater space can accommodate 90 to 125 patrons for a unique theatrical experience.

The Rowe Arts building houses the 360-seat **Rowe Recital Hall** and the **White Box Theater**, a classroom and lab theatre space dedicated to the development of student works and projects.

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## Productions

The Departments of Dance, Music, and Theatre are the headliners at Robinson Hall. The primary role of our two theaters – the 340-seat, proscenium-style Anne R. Belk Theater and the intimate 125-seat, “black box” Lab Theater – is to support the education of our students in the processes of performing arts production. In the weeks before the performance, the theater space becomes a laboratory as students hang lights, construct sets, work sound and rehearse, learning how to carry out the remarkable technical operations necessary to stage and produce a show.



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# Preparation for Professional Schools

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An education at UNC Charlotte can prepare students for a number of professional careers. Students who plan to enter a professional school are advised to plan their program of study so that general requirements for their degree are met in addition to the requirements for the professional program being considered. This can begin with a discussion



with an academic advisor as soon as a student starts to explore professional schools. Students should become familiar with the requirements of the professional schools of interest. That school, not UNC Charlotte, will determine which UNC Charlotte credits will be accepted.

Professional school entrance requires an extensive commitment and focused career choice. Certain careers require an advanced degree, and the University Career Center (UCC) can help students identify what kind of graduate study will best prepare them for the specific career of interest. In addition, the career resource collection in the UCC contains information on preparing for professional school exams, select fellowships and grants, and in-depth career information. Hire-A-Niner, the UCC’s online job and internship database, includes relevant job shadowing, internship, and work opportunities. Résumé critique sessions, application essay reviews, and mock interviews offered by the UCC can be geared toward professional school admissions, based on student need. Professional programs recruit on campus at the Career Expo (Fall and Spring) and Health Graduate & Professional Program Fair (Spring).

It is important to note that there are more application requirements for professional programs than for undergraduate programs. Application is often an extensive and in-depth process. The UCC can help students plan the application and career development processes, which includes career exploration through job shadowing, self-assessment, career research, and internships.

UNC Charlotte's Extended Academic Programs office offers fee-based programs that help students prepare to take the GRE, GMAT, and LSAT exams.

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## Pre-Health

UNC Charlotte offers pre-professional preparation for undergraduate, graduate, and post-baccalaureate students interested in pursuing a career in medicine, dentistry, veterinary medicine, pharmacy, optometry, physician assistant, physical therapy, podiatry, and related healthcare careers. Opportunities and services available to students include:

- Strong academic preparation in the required prerequisite core of science and math courses
- Broad selection of recommended non-science courses
- Pre-Health Professions Advising for academic and nonacademic requirements for professional school admission
- Assistance with the application process, including essay preparation and interviews
- Pre-Professional Faculty Evaluation Committee that prepares composite recommendation letters on the student's behalf
- Opportunities to participate in research
- Student clubs that offer guest speakers, community service, and support

Like most universities, UNC Charlotte does not offer a formal pre-health major, minor, or program. Students must select a major and are responsible for completing the prerequisites for their chosen professional school *in addition* to courses for their major. There is no requirement to major in science, but strong preparation in science and math must be demonstrated, regardless of the major. A Pre-Health Advisor will assist the student with identifying the appropriate pre-professional courses and formulating a timeline for their completion.

All pre-health students are encouraged to consult with a Pre-Health Advisor to plan and review their course of study and other requirements necessary for admission into professional schools. Additional information may be found on the Honors College website at [honorscollege.uncc.edu](http://honorscollege.uncc.edu), including prerequisite course lists for various professions.

For health-related student organizations, please visit the Student Organizations website at [studentorgs.uncc.edu](http://studentorgs.uncc.edu).

### Prerequisite Core Courses

The basic minimum requirements for entrance to most health professions schools are as follows:

Biology (with labs) .....	8 hours
General Chemistry (with labs) .....	8 hours
Organic Chemistry (with labs) .....	8 hours
Physics (with labs).....	8 hours
English .....	6 hours

*Note: These are the common minimum requirements; additional courses may be required at the discretion of the professional school. Most students will need additional coursework and healthcare-related extracurricular activities to be competitive for admission. Community service is also highly desirable.*

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## Faculty Evaluation Committee for Pre-Health Professions

The UNC Charlotte Pre-Health Professions Faculty Evaluation Committee consists of faculty members from the University and serves as the main recommending body for UNC Charlotte students seeking entrance to medical, dental, veterinary, and optometry schools. Students must have competitive credentials to qualify for a committee letter. In order to obtain a recommendation from the committee, the student must schedule an appointment with the Pre-Health Professions Advising Office during the year in which applications are being submitted.

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## Pre-Law

Admission to law school is determined mainly by undergraduate grade point average and the score on the Law School Admissions Test (LSAT). Applicants also may submit letters of recommendation and a recitation of extracurricular activities, and personal statement, but those items are secondary to the GPA and LSAT. There is no defined program of pre-law courses, and law schools do not favor or require a specific major.



Law schools look for students who have taken courses that are academically rigorous, including writing intensive and research oriented courses.

To learn more about law school, please visit the UNC Charlotte Pre-Law Society website at [unccprelaw.org](http://unccprelaw.org) or contact the Department of Criminal Justice and Criminology. For law-related student organizations, please visit the Student Organizations website at [studentorgs.uncc.edu](http://studentorgs.uncc.edu).

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# Research

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<http://research.uncc.edu>

## Research and Economic Development

Research & Economic Development at UNC Charlotte strives to advance the quality, diversity, and growth of research at UNC Charlotte. A special value is placed on the translation of research results that impact our social, cultural, and economic communities.

### Vice Chancellor for Research and Economic Development

The Vice Chancellor for Research and Economic Development provides direction and leadership for the development and translation of research and creative activity at the University and the infrastructure that supports those activities. The Vice Chancellor leads the research and economic development efforts of the Charlotte Research Institute and directs eight support offices: Advancing University Research Administration (AURA), the Office of Proposal Development, the Office of Research Services & Outreach, the Office of Research Compliance, the Office of Grants & Contracts Administration, the Office of Technology Transfer, the University Vivarium, and the Small Business and Technology Development Center.

### Advancing University Research Administration

Advancing University Research Administration (AURA) is a suite of projects to implement research administration process and system improvements. The objective is to streamline research administration processes to improve effectiveness, efficiencies and customer service, enabling the University research faculty to increase their research endeavors. This project will also assess and improve the systems that support research administration processes. The AURA program is aligned with the University goal to reach at least \$50 million in research funding by 2020. The program is also aligned to the strategic goals of Research and Economic Development, which include improving customer service, increasing collaboration with other universities, and continuing to build the culture of research within the colleges at UNC Charlotte.

### Office of Proposal Development

The Office of Proposal Development (OPD) works closely with faculty and funding agencies to identify opportunities for proposal development, facilitate the formation of proposal teams, and provide a wide range of services to help faculty achieve their research goals, including consultation on writing and funding strategies, and proposal editing.

### Office of Research Services and Outreach

The Office of Research Services & Outreach (ORSO) provides services for the review and submission of proposals to funding agencies, including the interpretation of guidelines, preparation of budgets, and submission and tracking of proposals. ORSO also coordinates research-support efforts with college research officers and facilitates training opportunities for department and college administrators charged with helping faculty manage their grants.

### Office of Research Compliance

The Office of Research Compliance (ORC) facilitates and monitors University-wide compliance with federal and state policies established to ensure ethical conduct in research. Through its work with the Institutional Review Board, the ORC ensures respect, fairness, and safety in human subjects research. Likewise, oversight for the humane care and use of animals used in research and teaching is achieved through its work with the Institutional Animal Care and Use Committee. The ORC works with the Institutional Biosafety Committee and the Environmental Health and Safety Office to oversee biohazardous agents used in research and monitor safety concerns involving chemicals and radiation, and has responsibility for the University's adherence to export control regulations.

### Office of Grants and Contracts Administration

The Office of Grants and Contracts Administration (GCA) provides sponsored programs accounting, cash management, financial reporting, contract negotiation and approval, post-award management support, and cost analysis services. The Cost Analysis group manages the F&A and fringe benefit rate proposals to the Federal government and oversees effort reporting, cost-share reporting, recharge unit accounting, and research space inventory. The Award Management group works with the college sponsored programs offices to provide comprehensive grant accounting services from award setup through closeout and final reconciliation. The Compliance and Control group oversees billing, invoicing, cash management, sub-recipient monitoring, Federal draw-down, reconciliation, reporting, and year-end closing. The Contracting and Grant Services units are responsible for initiation of awards including contract negotiation and execution.

### Office of Technology Transfer

The Office of Technology Transfer (OTT) provides services for the review, protection, and management of University-based intellectual property, and commercializes intellectual property through licensing services. OTT builds and maintains strategic partnerships with local and state-based economic development agencies; assists and mentors faculty and

students with new business start-ups; provides outreach services in the areas of entrepreneurship, new business creation, intellectual property management, and venture capital financing; oversees all aspects of patent filing, prosecution, and maintenance; and acts as a conduit to industry for sponsored research and technology commercialization.

### **Small Business and Technology Development Center**

The Small Business and Technology Development Center (SBTDC) is one of 17 University-affiliated offices of The University of North Carolina's business and technology extension service and is operated in partnership with the U.S. Small Business Administration. SBTDC specialists provide management counseling and educational services to small and mid-sized businesses and also help business owners and managers, economic and community development organizations, education institutions and not-for-profit organizations develop strategies and action plans to gain competitive advantage. The SBTDC helps clients successfully compete for federal, state, and local government contracts; provides assistance with export financing; and provides research and marketing support services, primary research on small business needs and economic impact, and special projects such as small business incubator feasibility studies.

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## **Charlotte Research Institute**

The Charlotte Research Institute (CRI) is the portal for business-university partnerships at UNC Charlotte. Regionally, CRI works with the community and the campus to accelerate technology commercialization and the growth of entrepreneurial ventures. Globally, CRI develops intellectual capital through collaborations with industry, government and academia. New business and research ventures, university partnerships with regional and national enterprises, and CRI spin-off companies all draw research and businesses to the region and spur economic growth.

The mission of the Charlotte Research Institute is to accelerate research, partnerships, and business development by promoting and sustaining UNC Charlotte research center activity that generates intellectual capital, collaborative partnerships and economic development, marketing UNC Charlotte and CRI in the Carolinas region, and beyond, as a primary source for intellectual capital and technology partnerships, developing and maintaining entrepreneurial development programs and business startup services, and creating and managing research and business development infrastructure that supports interdisciplinary research, business-university partnerships, and innovative startups.

Innovation and entrepreneurship are strongly supported by CRI's Ventureprise business incubator located in the PORTAL industry-university partnership building. Ventureprise serves as the University's entrepreneurial resource and is fully integrated with the business engagement mission of the Charlotte Research Institute. It is a resource for faculty, researchers, and students seeking to commercialize innovations through new venture formation. Ventureprise is the portal into the University for early-stage entrepreneurs seeking to leverage University resources.

The incubator program, business advisory services, and education events offered by Ventureprise support dozens of companies each year. Ventureprise focuses on community businesses and University startups that benefit most directly from proximity to expertise, services, and equipment that only Ventureprise and the University can provide. Through its student incubator, the 49er Foundry, Ventureprise provides business advisory services, connections, and a learning community that support the launch of successful student-founded ventures. The 49er Foundry offers a shared, furnished workspace for multiple student ventures and is also located in the PORTAL building. Companies have access to services including wireless Internet, conference rooms, and office equipment. The space supports business-oriented social interaction and networking.

Science and engineering ventures at CRI are driven by the internationally known results of its research centers in Precision Metrology, Visualization, and Optoelectronics. CRI's research vision continues to grow with emerging research initiatives that include bioinformatics, biomedical engineering systems, energy production and infrastructure, sustainable design, lean logistics, complex systems, defense computing, information security, motorsports and automotive engineering, nanoscale science, translational research, and cancer research. Key research partnerships are also developing in data science and business analytics, health informatics, and advanced manufacturing. With facilities on the Charlotte Research Institute Campus and at the North Carolina Research Campus in Kannapolis, CRI helps companies initiate new partnerships at UNC Charlotte and offers a variety of opportunities to engage talented faculty and make use of specialized resources available at UNC Charlotte.

The CRI sector of the UNC Charlotte campus is a Millennial Campus, as defined by North Carolina legislation, and offers special opportunities for collaboration with private sector partners. In particular, partner companies may contract for use of research capabilities or facilities on the Millennial Campus, contract for sole-use space, and construct and manage

privately owned buildings. UNC Charlotte's latest commitment to university-industry partnerships is the PORTAL (Partnership, Outreach, and Research to Accelerate Learning) building which opened in January 2014. Located at the main entrance to the CRI campus, PORTAL offers 96,000 square feet of state-of-the-art office and research lease space where business partners and entrepreneurs have daily exposure to the creative mix of students, faculty, and specialized facilities that the region's premier urban research university has to offer. PORTAL's exceptional convening spaces support business tenants within the facility and provide venues for events and meetings with CRI area business and research partners. The PORTAL industry-university partnership facility is now home to the Ventureprise business incubator and accelerator, UNC Charlotte Office of Technology Transfer, and the Charlotte Small Business and Technology Development Center (SBTDC).

More information about the Charlotte Research Institute can be found online at [cri.uncc.edu](http://cri.uncc.edu).

#### **Industry/University Collaborative Research Centers**

Six centers have been organized using planning funds from the National Science Foundation and the NSF model for industry/university partnership. These centers involve a partnership of multiple universities and industry affiliates who pool resources to pursue research of mutual interest. The centers include: (1) Center for MetaMaterials; (2) Center for Sustainably Integrated Buildings and Sites; (3) Safety, Security, and Rescue Robotics Research Center, (4) Center for Configuration Analytics and Automation, (5) Center for Precision Metrology, and (6) Center for Freeform Optics.

#### **Bioinformatics Research Center**

The Bioinformatics Research Center conducts multi-disciplinary research involving the physical and life sciences, computer science, and mathematics and statistics with specific focus in the areas of functional genomics, statistical genetics, and proteomics. Projects underway include work in mechanisms of alternative gene splicing, new approaches to the analysis of microarray data, and the use of systems analysis techniques to understand gene-gene interactions. The center has taken a leadership role in developing Bioinformatics programs in collaboration with the developers of the North Carolina Research Campus, a billion-dollar, 350-acre research park that will be home to the research programs of a large number of private biotechnology companies as well as university and medical research programs.

#### **Center for Applied Geographic Information Science (CAGIS)**

CAGIS is an interdisciplinary research center that

focuses on using advanced space-time theories, methods, and technologies in cutting-edge Geographic Information Science for complex geographical problem-solving. Based on the synergistic coupling of spatiotemporal and computational thinking, major research themes of CAGIS consist of CyberGIS for large-scale geographical problem-solving; land use/cover change and sustainability study; complexity theory and geospatial modeling; big data and space-time analytics; remote sensing, sensor networks, and volunteered geographic information; computational intelligence for geocomputational modeling; cartography and geovisualization driven by the Internet; and open-source GIS software.

#### **Center for Biomedical Engineering and Science (CBES)**

The Center for Biomedical Engineering and Science addresses complex problems in healthcare in the Charlotte community and beyond. The center builds research and development collaborations between researchers within UNC Charlotte's Colleges of Engineering, Liberal Arts & Sciences, Health and Human Services, and Computing and Informatics; local healthcare institutions (including Carolinas Medical Center, Charlotte Orthopedic Research Center, and Presbyterian Hospital); and corporations in the Charlotte metropolitan area to solve biomedical engineering problems. The center's research is focused in three primary areas: (1) medical therapies and technologies; (2) molecular engineering and design; and (3) biomechanics and mobility research.

#### **Center for Configuration Analytics and Automation Research (CCAA)**

The CCAA vision is to provide research for improved configuration analytics and automation capabilities and their integration for efficient, accurate and timely operations, management and defense of complex networked information technology (IT) systems and environments.

#### **Center for Freeform Optics (CeFO)**

The Center for Freeform Optics (CeFO) aims to advance research and education on the science, engineering and applications of freeform optics through a dedicated, continuing industrial partnership. CeFO constitutes a unique research environment combining the strengths of two top-tier research universities with the experiences, insights, and needs of international industrial talent specialized in building systems supporting the manufacturing, integration, and implementation of advanced optical systems. CeFO provides vertical integration of mathematics, optics, optical science, materials science, optomechanics, precision optical manufacturing and testing, and instrument design in order to transform the optics industry in the 21st century.

### **Center for Lean Logistics and Engineered Systems**

This Center for Lean Logistics and Engineered Systems highlights solution driven projects that emphasize the best practices in Logistics, Supply Chain Management, Lean Manufacturing, and Six-Sigma Quality Management.

### **Center for Metamaterials (CfM)**

The mission of the Center for Metamaterials is to advance fundamental and applied metamaterials research, development, and technology transfer through strong industry/university collaborations. The researchers at the Center focus on industry-relevant, precompetitive research topics jointly identified by university and industry participants, and include metamaterials processing, testing, and device development. The projects advance the knowledge base for metamaterials through precompetitive research that will directly benefit Center members through shared knowledge and intellectual property. The intent is to nurture long-term relationships and collaborations among the university, industry, and government laboratories. Members participating in the Center share in research and development, laboratory infrastructure, and the resulting economic benefits.

### **Center for Optoelectronics and Optical Communications**

The Center for Optoelectronics and Optical Communications includes research areas in: design and fabrication of photonic devices, meta-materials, integrated optical circuitry, assembly and packaging of optical systems, optical materials, methods for precision optical metrology, and optical imaging and inverse methods for wave front synthesis. The Center has successfully allied with the Massachusetts Institute of Technology (MIT), Duke University, The Carolinas MicroOptics Triangle, and the North Carolina Photonics Consortium. A respected leader in the discipline, the Center has continuing support from the Defense Advancement Research Projects Agency (DARPA).

### **Center for Precision Metrology**

The Center for Precision Metrology is focused on precision engineering and measurement, including research in manufacturing processes and quality assurance for mechanical parts to within a millionth of a meter. New state-of-the-art facilities include clean rooms and multiple metrology labs. Research efforts include picometer scale positioning devices, self-aware manufacturing, large scale metrology, high-speed machining, specialized sensors, adaptive polishing and grinding. Applications have spanned many different industries from microelectronics to aerospace and attracted companies such as Caterpillar, Intel, Mitutoyo, Siemens, General Electric, and Boeing for collaboration. The Center has been recognized as a

National Science Foundation Center of Excellence in New Industry Collaboration and in Nanoscale Science and Engineering.

### **The Center for Sustainably Integrated Buildings and Sites (SIBS)**

Sustainably Integrated Buildings and Sites is a collaboration between leading companies, corporations, universities, government agencies, and other organizations renowned for their innovative research capabilities, with the purpose of conducting research that promotes improved energy use, water use, air quality, and productivity in buildings through the integration of appropriate subsystems and technologies. The Center develops students who are knowledgeable in industry-relevant research and prepared to develop innovative products and services that enhance global competitiveness.

### **Complex Systems Institute**

The Complex Systems Institute is a multi-disciplinary research center that provides a home for researchers who cross disciplinary boundaries in search of holistic answers. Current faculty come from areas as diverse as: Computing, Political Science, Sociology, Business, Biology, Communications, Philosophy, Theater, Language, and Health and Human Services. Tools developed by CSI members help analysts model infrastructure and social networks, visualize and understand how individual networks behave, and understand multiple-network interdependency behavior, including second and third order effects and unintended consequences. There are three centers within the Institute: The Complexity Laboratory, Defense Computing Center, and The Center for Advanced Research in the Humanities.

### **Cyber Defense and Network Assurability Research Center**

The CyberDNA Center focuses on research to help mitigate threats to the internet and internet users. Students are trained to identify network and user vulnerabilities and prevent cyber attacks.

### **Data Science Initiative**

The Data Science Initiative (DSI) is an industry-university-state partnership to broaden and deepen North Carolina's business analytics talent and stimulate strategic innovation. It directly supports high-end job creation and business investment in the Charlotte region and across the state. The lead partners on the DSI, the College of Computing and Informatics and the Belk College of Business, each has a long, successful history of fostering strategic relationships with the business community. The initiative also includes the College of Health and Human Services and its emerging leadership in health informatics. This team provides intellectual capital, academic programs, and

outreach activities to meet the needs of employers in the new data-driven economy, both in developing a highly trained workforce and in providing cutting-edge research to address challenges and opportunities in the rapidly changing business environment.

### **Energy Production and Infrastructure Center (EPIC)**

The Energy Production and Infrastructure Center (EPIC) targets innovation in technologies associated with generation and distribution of reliable, affordable and clean energy sources. UNC Charlotte is partnering with the energy and infrastructure industry to create a scientific and technical resource for the energy industry and a training ground for the energy workforce. EPIC is an interdisciplinary research center with a strong emphasis on collaboration among the disciplines of civil and environmental engineering, computer and electrical engineering, mechanical engineering and engineering science, and systems engineering and engineering management.



### **Infrastructure, Design, Environment, and Sustainability (IDEAS) Center**

The Infrastructure, Design, Environment and Sustainability (IDEAS) Center was created to provide regional leadership to accelerate a cultural and technological shift to more sustainable practices as humans create and live in the built environment. Research topics are broad and include renewable energy, high performance building and renovation, low impact materials, material reuse and recovery, sensor applications, monitoring and long term performance assessments, greenhouse gas inventories, life cycle assessments, and low impact development.

### **Life Science Research**

Life Science Research is now developing strongly in five focus areas. Translational Research is designed to join basic science research with patient care to develop novel treatments and therapies for diseases and healthcare problems. Health Services Research harnesses the power of visual analytics for data warehousing/mining of large scale databases (vital

statistics, hospital discharges) for decision support for both clinical and public health research domains. Kinesiology Research is focused on biodynamics and exercise physiology. Nursing and Rehabilitation Research focuses on recovery from severe physical trauma. Ecology and Environmental Biology Research is geared toward toxicology, bacteriology and biotechnology. UNC Charlotte research in cancer diagnostics and treatment continues to expand.

### **Nanoscale Science Initiative**

UNC Charlotte was the first university in the UNC system to offer a Ph.D. in Nanoscale Science. This initiative focuses on the development, manipulation, and use of materials and devices on the scale of roughly 1–100 nanometers in length and the study of phenomena that occur on this size scale. Nanoscale science offers great potential for applications in materials, medicine, optics, electronics, data storage, advanced manufacturing, environment, energy, and national security.

### **North Carolina Motorsports and Automotive Research Center**

The College of Engineering includes a group focused on motorsports and automotive research with collaborative partnerships with area race teams and NASCAR. A new 16,000 square foot building, named in honor of race car driver Alan Kulwicki, opened in November 2011 that more than doubles the space available for motorsports and automotive research. The water tunnel originally erected in the motorsports annex to Duke Centennial Hall has been relocated in the Kulwicki addition to support aerodynamics studies.



### **Project Mosaic**

Project Mosaic, is an initiative led by Knight Foundation Distinguished Professor Jean-Claude Thill to enhance the University's social and behavioral science research by supporting interdisciplinary teams. Initially, the work centers on two themes: (1) human and social capital, innovation and quality of life and (2) metropolitan centers, world trade, transportation, and communication. Themes that are collaborative, data-intensive and cross-disciplinary in nature will be added

as the project evolves. The project will include social and behavioral science investigators from across the University, including from the College of Liberal Arts & Sciences, College of Education, College of Health and Human Services, and the Belk College of Business. Faculty from other colleges whose interests synergize with this initiative are welcome.

### **Safety, Security, and Rescue Research Center (SSR-RC)**

The UNC Charlotte SSR-RC site mission is to conduct partner-oriented, multi-disciplinary research on computation-driven robotic and sensor systems augmented by data analysis, to improve the safety, capability and well-being of humans. The SSR-RC focuses on research to solve issues related to the physical safety and well-being of humans as workers, patients, and customers.

### **Visualization Center**

The Visualization Center collaborates with a wide variety of business, government, and academic partners on a range of applications that include visual analytics, homeland security, information privacy and security, intelligent data analysis, systems integration, information visualization and bioinformatics. The center is designated and funded as a Regional Visualization and Analytics Center by the U.S. Department of Homeland Security.

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## **Metropolitan Studies and Extended Academic Programs**

Metropolitan Studies and Extended Academic Programs is a unit of Academic Affairs, with a mission to provide community-based research services to local, regional, and state-level clients. Off-campus partners include local governments, non-profit organizations, and community groups. The unit collaborates with research centers and departments across the University to identify graduate student and faculty resources that align with community engaged research requests. Services range from needs assessments and public policy guides to analytical modeling tools. Graduate research assistantships and travel funding are widely available. For additional information, visit [mseap.uncc.edu](http://mseap.uncc.edu).

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## **UNC Charlotte Urban Institute**

The UNC Charlotte Urban Institute is the University's applied research and community outreach center for urban and regional affairs, connecting faculty and students with community organizations and public institutions working on significant public policy issues in the 14-county, two-state region surrounding Charlotte. Founded in 1969, the Institute has provided during its 40-year tenure a wide-range of services,

including technical assistance and training related to operations and data management, public opinion surveys, land-use and natural resources consulting, economic development research, and community planning to meet the needs of the region and its citizens. The Institute's continuing focus has been a multidisciplinary social sciences approach to research, outreach, and training to support informed decision-making in the region. Ongoing programs include:

### **Center for Transportation Policy Studies**

The Center for Transportation Policy Studies, founded in 2002, is dedicated to the research and study of transportation issues and transportation-related policy. The Center conducts research and policy analyses that result in efficient and cost effective investments and sound decisions for developing and maintaining multimodal transportation systems and services.

### **Charlotte Regional Indicators Project**

The Charlotte Regional Indicators Project compiles objective, reliable, and relevant measures for the greater Charlotte region on indicators important to the region's quality of life. Organized in ten theme areas, and measured over time and compared to state or national data, the indicators provide policy-makers, civic leaders, and the public with a solid foundation for engaging in efforts to address the region's social, economic, and environmental challenges.

### **Institute for Social Capital, Inc.**

The Institute for Social Capital, founded in 2004, became part of the UNC Charlotte Urban Institute in March 2012. Its mission is to support university research and increase the community's capacity for data-informed decision-making. At its core is a comprehensive set of social and human data gathered from several public and nonprofit organizations in the region. By linking data across agencies, the ISC Community Database allows researchers and community agencies to better describe, understand, and serve members of our most vulnerable populations.

### **TIMS Project Office for Western N.C.**

The TIMS (Transportation Information Management System) project office for Western N.C, provides support for public school districts in 45 of the 100 counties in North Carolina, since the mid-1980s. A major on-going project, the TIMS office for Western N.C. provides software support and training for the statewide computerized school bus routing project, and focuses on planning and technology issues related to school operations, data management and training.

Visit [ui.uncc.edu](http://ui.uncc.edu) for more information about the UNC Charlotte Urban Institute and its programs.

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# Safety

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## Police and Public Safety

The UNC Charlotte Police Department proactively patrols and responds to calls from the University community 24 hours a day, 365 days a year. The Department is comprised of over 40 sworn police officers who have successfully completed all of the trainings and certifications required to serve as law enforcement officers in North Carolina. Patrols are conducted in marked and unmarked cars, bicycles, off-road vehicles, and on foot. Non-sworn personnel known as “Rangers” serve as extra sets of eyes and ears by patrolling and/or securing buildings and parking lots. Security personnel from the Housing and Residence Life, Atkins Library, and Halton Arena/Student Activities Center provide additional layers of safety and often work in concert with the Department.



The Department’s Administrative Office is located in the Facilities Management/Police & Public Safety Building located at 9151 Cameron Boulevard across the street from the Student Health Center. This building contains the Department’s 911 Emergency Telecommunication Center which is staffed 24 hours a day that can be reached by dialing 911 from any landline on campus or 704-687-2200 from a cellular phone. Individuals in need of emergency assistance or who simply need police assistance for a non-emergency situation are strongly encouraged to call this number. Individuals who need to pick up a copy of a police report or who are searching for Lost & Found items may stop by the 1st floor lobby of this building or call the Administrative Assistant at 704-687-8300 during normal business hours.

The Department’s website contains a wide variety of information pertaining to what the Department is doing to provide for a safe and secure environment on campus and how the Department is increasing its

responsiveness to the needs of the campus community. Some of the items on this website include the Department’s Annual Security Report, information on how individuals can reduce their chances of becoming the victim of a crime, Rape Aggression Defense (R.A.D) training class dates, and links to other community resources that assist the Department in protecting the campus community. The website also features information about the University’s nearly 300 emergency blue light phones and how individuals can sign up to receive emergency text messages. Finally, the website allows individuals to confidentially report a crime on campus or file a commendation/complaint about a particular member of the Department. For more information about any of the aforementioned items, please visit [police.uncc.edu](http://police.uncc.edu).



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## Environmental Health and Safety

It is the mission of the Environmental Health and Safety Office to support the University by working with all University community members to provide a safe and healthy working, teaching, learning and living environment. This is accomplished by providing high-quality, responsive customer-focused environmental health and safety services to the campus community. It is our responsibility to develop environmental health and safety programs, maintain appropriate accident documentation, conduct safety inspections of all facilities and operations, audit safety programs, maintain all regulatory required reports, and generally work to reduce the risks of illness or injury.

All members of the University community share the responsibility to provide and maintain a safe and healthful campus environment and to reduce or eliminate known hazards. Each individual is expected to exercise appropriate care in the conduct of his or her activities to preserve the safety and health of self and others. For more information, please visit [safety.uncc.edu](http://safety.uncc.edu).

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# Sports and Recreation

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## Charlotte 49ers/Athletics

The Charlotte 49ers Department of Athletics provides competition in 17 intercollegiate varsity sports for men and women. Each sport competes under the governing powers of the National Collegiate Athletic Association (NCAA) at the Division I level, which is the



highest competitive level for collegiate varsity sports. Scholarships are available for all varsity sports, male and female.

Male student-athletes compete in nine sports: baseball, basketball, cross-country, football, golf, soccer, tennis, indoor track and field, and outdoor track and field. Female student-athletes compete in eight sports: basketball, cross-country, soccer, softball, tennis, volleyball, indoor track and field, and outdoor track and field.

The Charlotte 49ers are affiliated with the Conference USA with play in the league beginning during the 2013-14 season. Conference USA is comprised of 14 schools: UNC Charlotte, UAB, Florida Atlantic, Florida International, Louisiana Tech, Marshall, Middle Tennessee, North Texas, Old Dominion, Rice, Southern Mississippi, UTEP, UTSA, and Western Kentucky. Conference USA tournament champions in baseball, men's and women's basketball, golf, men's and women's soccer, softball, men's and women's tennis, and volleyball receive automatic bids to the NCAA post-season tournaments. Bowl bids are available to Conference USA schools in football.

### Facilities

On-campus facilities play host to Charlotte 49ers athletics, with the exception of golf and cross-country. Sites for home competition for the 49ers include McColl-Richardson Field at Jerry Richardson Stadium for football; Halton Arena for basketball and volleyball; the Irwin Belk Center and Transamerica Field for soccer and track and field; the Halton-Wagner Tennis

Complex for tennis; Robert and Mariam Hayes Stadium for baseball, and Phillips Softball Diamond for softball.



For more information about the Charlotte 49ers, please visit [Charlotte49ers.com](http://Charlotte49ers.com).

UNC Charlotte students receive **FREE ADMISSION** to all regular-season home athletic contests. Football, men's basketball, and baseball tickets are obtained by students via an online process at [ticketreturn.com/49ers](http://ticketreturn.com/49ers). For all other events, students gain admission with a valid UNC Charlotte student ID.

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## Recreational Services

Recreational Services develops and conducts programs that provide opportunities for University students and faculty/staff members to participate in recreational activities. Five major program areas offer a variety of structures in which members of the University community may pursue recreational interests. *Intramural Sports and Tournaments* are scheduled throughout the year for individual, dual, and team participation. The leagues and tournaments are organized to provide separate competition among



coeducational, men's, and women's teams. *Sport Clubs* provide an opportunity to participate in a single sport on a continuing basis.

Approximately forty clubs, ranging from equestrian to lacrosse to

tennis, are active each semester. *Fitness and Wellness* opportunities include Group Fitness, mind/body courses and Personal Training. Three major *Special Events* are offered each year, RecFest, 49er Gold Rush 5K Run/Walk, and a Spring Golf Tournament. The Special events are open to the public and may involve food, games, prizes, entertainment, and competition.

In addition to structured sports programs, the division promotes the concept of informal recreational use of athletic facilities through the *Open Recreation Program*. Recreational Services hires hundreds of students each year for jobs such as referees, group fitness instructors, personal trainers, lifeguards, office assistants, and more. For additional information, visit [recservices.uncc.edu](http://recservices.uncc.edu).



## Recreational Facilities

### Indoor Facilities

#### Belk Gymnasium

The Belk Gymnasium features basketball, volleyball and badminton courts, an indoor swimming pool, racquetball and squash courts, and lockers for students, faculty, and staff. It also houses classrooms and an auditorium for audiovisual presentations.



#### Student Activity Center

The James H. Barnhardt Student Activity Center (SAC) is a multi-purpose facility designed to meet the diverse social, cultural, and recreational needs of students at UNC Charlotte. The SAC is home to the Halton Arena, a 9,000 venue hosting athletic events, concerts, lectures, and a variety of other university functions.

Retractable seating in the area folds back to reveal four recreational courts that may be used for Intramural Sports, free-play, sports camps, or for special events including job fairs, trade shows, etc. Other recreational offerings include a state-of-the-art weight room, aerobics studio, indoor track, and indoor climbing wall. In addition to the physical fitness and wellness facilities, the SAC also serves as a meeting place for students and the campus community. The third floor of the SAC is comprised of a large and gracious hospitality area that can be sub-divided into five separate meeting salons. Adjacent to the hospitality

area is a campus catering kitchen, serving the special events in the SAC as well as other campus events.



### Outdoor Facilities

#### Northeast Recreational Field Complex

Ten acres of lighted cutting-edge synthetic turf fields can be used for Intramural Sports, Sport Clubs, and free play. The artificial turf protects against injuries and muscle fatigue. These fields are also ready for play within one hour following rainfall. That means fewer cancellations and more game time!

#### Hayes Recreational Field Complex

Located off Phillips Road above the Wachovia Field House, these lighted fields combine nearly 5 acres of natural turf with five and one-half acres of synthetic turf for a great outdoor experience. Available for Sport Clubs, Intramural Sports, and open recreational use when not reserved.

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# Student Activities

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<http://studentunion.uncc.edu>

Student Activities creates student learning and development opportunities that inspire campus involvement and civic engagement. Students unsure of how or where to get involved should contact Student Activities at 704-687-7122 or by visiting the above website.

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## Campus Activities Board

The Campus Activities Board (CAB) is the largest student programming organization on campus and is responsible for planning diverse, quality events for the University community. CAB offers multiple programs a week and works to enhance and unify the University community by planning social, cultural, educational, and recreational events that complement the University's academic mission.



CAB is located on the second floor of the Student Union. For more information, visit [cab.uncc.edu](http://cab.uncc.edu). Opportunities for student involvement include the following committees:

### CAB Live

As the name implies, this committee is all about live entertainment ranging from comedy, live music, variety acts, poetry slams, showcases, and other entertainment trends. This committee works hard to bring a wide-variety of diverse acts to campus.

### T.A.X.I. (Talents, Activities, eXcursions and Interests)

With this committee, anything goes! From talent shows and open mics to trips to Charlotte sporting events, this committee focuses on student talents and interests through programs and trips to explore Charlotte and other destinations.

### Daytime Niners

This committee is all about events for Niners throughout the day (8 a.m. - 5 p.m.). Daytime events consist of interactive activities, musical performances, games, or workshops.

### Union Take Over

Our Signature Union Party! A few times each

semester, CAB takes over the Student Union with music, games, and lively entertainment!

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## Niner Media

The Niner Student Media Board is the governing body for Niner Media and is comprised of students and administrative staff members, as well as representatives of the various student media.



### Niner Times

*Niner Times* is the campus newspaper, published every Tuesday, which offers campus news and journalism experience for students. The newspaper provides a vital service to the entire University community by keeping readers informed of issues of common concern and interest. Family members may keep informed about the University's news by locating a copy of each online edition at [NinerTimes.com](http://NinerTimes.com).

### NinerTimes.com

NinerTimes.com is the University community's home in cyberspace. UNC Charlotte news, sports, and feature stories are posted several times each week. Students gain experience with Internet publishing and video production by working with [NinerTimes.com](http://NinerTimes.com).

### Media Marketing

The sales and promotions branch of Niner Media, this department solicits advertising and coordinates promotion for UNC Charlotte's student publications. Media Marketing offers real world experience and internship opportunities for business, marketing, and communication careers.

### Sanskrit

*Sanskrit* is the nationally recognized literary-arts magazine published by students interested in the arts. Original work in writing, drawing, photography, and other arts is welcomed by the editor. Submissions are professionally juried, and selections are published in the annual edition of the magazine.

### Radio Free Charlotte

An online digital radio station that focuses on underground and independent music, as well as sports, news, and local events. Listen online at [radiofreecharlotte.uncc.edu](http://radiofreecharlotte.uncc.edu).

### Practicum

Available to students who participate in one of the Niner Media departments, academic credit is offered through the Department of Communications Studies. The course in Journalism Practicum (JOUR 3401) is offered each semester.

### Internships

Niner Media interns can earn academic credit and receive "hands on" media experience in writing, design, photography, advertising, desktop publishing, and management.

For more information about how to get involved with Niner Media, contact the office at 704-687-7140 or visit [media.uncc.edu](http://media.uncc.edu). Niner Media is located in the Student Union.

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## Center for Leadership Development

The UNC Charlotte Center for Leadership Development provides students with opportunities to develop leadership skills and abilities and provides the University and student organizations with more effective leadership. The Center provides a comprehensive and diverse program of leadership development activities for current and potential student leaders.

The program consists of group and self-paced leadership workshops, retreats, and conferences, as well as academic courses. Individual and group consultation is also available.

### Academic Certificate in Leadership Studies

An 18-credit hour concentration in interdisciplinary leadership studies is offered, leading to an academic certificate awarded at graduation from UNC Charlotte.

### Conferences

The Center co-sponsors leadership conferences such as the Greek Leadership Symposium and the Multicultural Leadership Conference.

### Emerging Leaders

The Emerging Leaders program provides a cohort leadership experience for freshmen (applications available early Fall semester).

### Individual and Group Consultation

Assistance with applications, interviewing, leadership issues and programmatic needs are available through the Center.

### LEAD Team

Students in the LEAD team are trained and available to make presentations on a wide variety of leadership topics.

### Leadershape Institute

The Institute is a leadership program for established leaders with a focus on vision and leading with integrity.

### Leadership Fellows

The Center offers a Fall semester cohort leadership experience for upper classmen (applications available Spring semester).

### Leadership Journey Learning Community

A one-year residential program is offered to first-year students who have an interest in developing or building leadership skills and abilities.

### Leadership, Communication, and Group Dynamics

A 3-hour leadership theory course (COMM 3135) is taught on leadership, communication, and group dynamics.

### Leadership, Service and Ethics

A 3-hour course in communication studies (COMM 3136) is offered for students interested in developing a leadership framework and obtaining academic credit.

### PILOT (Programs In Leadership and Organizational Training)

The Center offers an individualized leadership program that provides an opportunity for leadership certification through this self-paced program.

### Women's Leadership Development Program

This cohort-based women's leadership conversation series is for women who are currently acting as leaders. It provides the opportunity for interaction with and learning from women who are leaders in our community.

Visit [leadership.uncc.edu](http://leadership.uncc.edu) for more information about the Center for Leadership Development.

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## Multicultural Resource Center

The Multicultural Resource Center (MRC) offers an environment for students, faculty and staff to learn about and to further explore personal identity and



diversity while making connections with individuals who represent a vast array of heritages, backgrounds, interests, and experiences. The Center is available to assist students individually in their own explorations of identity and/or the exploration of the heritage and culture of

others. The MRC can also assist student organizations in their operations and programmatic efforts.

The MRC is located in the Student Union and houses a resource area with information regarding both University and community support sources, a multimedia library that covers a variety of topics, and an assortment of multicultural publications (magazines, newspapers, and newsletters). To supplement these resources, the Center offers ongoing education and training exploring the many facets of diversity and human relations.

Programming supported by the MRC includes the annual International Festival, Martin Luther King, Jr. Celebration, cultural heritage months (Black History Month, Hispanic/Latino Heritage Month, Asian/Pacific Islander Heritage Month, etc.), and LGBTQ outreach and education, as well as other special events. Along with these efforts, the MRC provides support to 100+ multicultural student organizations, as well as support for student/student organizations that support its mission and purpose. Visit [mrc.uncc.edu](http://mrc.uncc.edu) for more information.



### Multicultural Student Council (MSC)

The Multicultural Student Council is a diverse body of students organized to assist the MRC in its efforts to promote multiculturalism. Along with the Center, the MSC works closely and collaboratively with students, student organizations, and departments to support the unique diversity present at UNC Charlotte and in the Charlotte community.

### Safe Zone Program

The purpose of the Safe Zone Program at UNC Charlotte is to create an affirming and supportive campus climate through identifying and educating members of our campus community who are open to and supportive of all individuals regardless of sexual orientation, gender identity, or gender expression. The Safe Zone Program is an umbrella for all educational LGBTQ programming, including the Safe Zone Ally Program, Friendly Peer Training, and the Safe Brother/Safe Sister Program. Visit online at [safezone.uncc.edu](http://safezone.uncc.edu).

### Religious and Spiritual Life (RSL)

RSL serves as a liaison for faith-related matters within the University community. Additionally, RSL assists in the holistic development of UNC Charlotte students by providing avenues to explore religious and spiritual identity and expression. Through dialogues, workshops, programming, and student organizational support, RSL promotes personal growth, mutual understanding, and a healthy, engaged community. Visit online at [rsl.uncc.edu](http://rsl.uncc.edu).

## Venture

Venture offers a variety of outdoor adventure and experiential learning trips, programs and workshops. Activities include day trips as well as weekend trips in a variety of outdoor endeavors from backpacking to rock climbing to kayaking (to name only a few). Venture also hosts and facilitates many programs on its on-campus Team Challenge Course, High Team Challenge Course, and indoor climbing wall. Venture programs are modeled on the Outward Bound philosophy and are designed to facilitate individual growth through physical challenge, group interaction, and personal reflection - all while having fun. Students involved in VOLTAGE (Venture Outdoor Leadership Training and Group Experience) have the opportunity to be trained as student leaders on Venture's trips and programs. Venture also houses a resource library to help individuals plan their own adventure trips. Outdoor camping gear can be rented. Venture's newest initiative is SOAR Outdoor, an opportunity for students to connect with the University and other students in meaningful ways prior to their first semester.



Venture offers courses for academic credit through the Department of Kinesiology. Each semester, a variety of one-, two-, and three-credit outdoor activity courses are offered including: Introduction to Outdoor Adventures, Rock Climbing, Challenge Course Activities, Raft Guiding, Wilderness Experience, Wilderness Trip Leading, and Challenge Course Facilitation for the low and high challenge course. For additional details and to see the descriptions for KNES courses, visit [venture.uncc.edu/academics](http://venture.uncc.edu/academics).



For more information about Venture, please visit [venture.uncc.edu](http://venture.uncc.edu).

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## Student Government Association

The Student Government Association (SGA) provides students with an early experience in governmental affairs. Many students find their work in student



government a useful background for later public service and others want to make their campus a better place while they are

here. The University encourages student participation in its affairs and has student representatives on many faculty and administrative committees. The leaders of student government are committed to representing the student body and to developing students' awareness of the many facets of campus life. All regularly enrolled students, both full and part-time, are eligible to participate in student government. Visit online at [sga.uncc.edu](http://sga.uncc.edu).

The Student Government Association is comprised of:

### Executive Branch

The Executive Branch is comprised of the Student Body President, the Vice President, Chief of Staff, the four class presidents, and the Executive Cabinet, who are appointed by the President. The Student Body President serves as a member of the UNC Charlotte Board of Trustees.

### Student Senate

The Student Senate is comprised of the President Pro Tempore and representatives from each academic college who are elected by the students with majors in the college. The Vice President of the Student Body conducts all meetings and serves as liaison between the Senate and the Student Body President's office.

### Judicial Branch

The Judicial Branch is composed of panel members of the Judicial Board, including leadership in the offices of Student Attorney General, Chief Justice of the Hearing Panel, and Student Counsel. Members of the Judicial Board are responsible for hearing cases of alleged violations of the UNC Charlotte Code of Student Responsibility and determining appropriate sanctioning if the accused is found responsible for a violation. The Judicial Branch is advised by the Dean of Students Office.

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## Student Involvement

Student Involvement supports students' engagement with campus through organizations and special events. UNC Charlotte has over 350 student organizations that enhance the academic experience of UNC Charlotte students and provide opportunities to get involved. The categories of student organizations include:

academic (pre-professional), fraternities and sororities, graduate organizations, honor societies, interest, performance, service, political, religious, multicultural, international, sport clubs, and media/publication. There are many benefits to joining a student organization, including making new friends, developing new skills and abilities, working collaboratively as part of a team, learning to set and achieve goals, leadership opportunities, as well as having fun. Students may also start a new student organization if there is not one already on campus that matches their interests. Contact Student Involvement with questions about resources available and how to get connected. Contact information and a current listing of all registered student organizations is available online at [studentorgs.uncc.edu](http://studentorgs.uncc.edu).

Student Involvement also hosts special events such as Homecoming, Haunted Union, and Late Night Breakfast that build spirit and tradition for the Niner Nation.

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# University Advancement

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<http://advancement.uncc.edu>

UNC Charlotte recognizes that its mission reaches beyond the borders of the campus to the surrounding region and the state. The University touches many facets of community life and serves as a catalyst for development of a regional approach to solving problems in education, economic development, transportation, the environment, cultural amenities, and the quality of life. Faculty, staff, and students have made a significant impact on the region through research, historic preservation, planning, the arts and literature, and the delivery of government and social services.

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## Alumni Affairs

Alumni Affairs, located in the Harris Alumni Center at Johnson Glen, strengthens and maintains the relationship between the University and its alumni through the management of the Alumni Association. Some of the most rewarding experiences of University life begin at graduation when former students enter the Alumni Association. Alumni are an essential part of our University and are among the University's most valued supporters.

Programs of the Alumni Association include: the regional, local, special interest, and collegiate chapters; homecoming activities; networking socials; athletic support; and sponsorship of the Student Alumni Ambassadors.



Alumni Affairs seeks to maintain lifelong contact with all graduates. Graduates are encouraged to become active in the Alumni Association and to notify Alumni Affairs of address changes, employment information, and other significant events, such as marriages, births and honors. Today, UNC Charlotte boasts more than

100,000 living alumni and adds 4,500 to 5,000 new alumni each year. The Alumni Association is a non-dues paying organization, and the only requirement for membership is to be an alumnus of the University.

For more information about the Alumni Association, please visit [alumni.uncc.edu](http://alumni.uncc.edu).

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## Community Relations

As North Carolina's urban research university and the largest in the region, UNC Charlotte strives to address the cultural, economic, educational, environmental, health and social needs of the greater Charlotte Region. The mission of Community Relations is to extend and strengthen the University's presence in the region by building collaborative relationships between UNC Charlotte and key community constituencies and organizations.

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## Events and Special Projects

Events and Special Projects staff members plan, produce, and coordinate logistics of events hosted at the Chancellor's residence along with a variety of strategic University events, including Commencement and welcome and recognition receptions.

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## Giving and Donor Relations

Though UNC Charlotte is a state-supported institution, the University depends on non-state resources for more than half of its operating needs. Philanthropy is critical to the margin of excellence needed for the University to fulfill its mission of education, research, and public service.

Giving and Donor Relations plans and implements the private fundraising and related efforts of the University and the Foundation of The University of North Carolina at Charlotte, Inc. Its functions include annual giving, gift planning, major gifts, corporate and foundation relations, gift processing, alumni/donor records, research, donor stewardship, prospect coordination and clearance, and campus-wide development services.

The Foundation of The University of North Carolina at Charlotte, Inc. is the 501(c)(3) public charity, incorporated in 1965 to benefit UNC Charlotte through asset management and fundraising. The Foundation advances UNC Charlotte as North Carolina's urban research university through active engagement, advocacy, fundraising, and stewardship.

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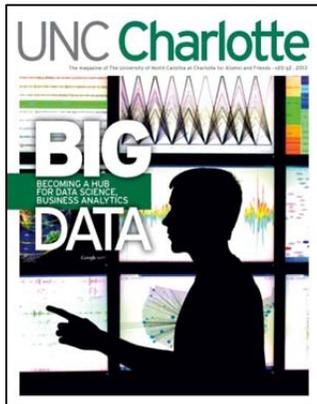
## Government Relations

Government Relations fosters, supports, and expands the University's relationships with the state, regional,

and local governmental and non-governmental organizations that can strengthen the University in its ability to deliver educational and research programs in support of its mission.

## University Communications

University Communications crafts and distributes the messages that shape public perception of the University and the UNC Charlotte brand, position the institution as a local and regional thought leader, inform the campus community, and inspire alumni and friends. The team provides strategic marketing and communications counsel, planning, and support, as well as the creative direction and production of print, web,



social media, graphic and broadcast communication solutions to all academic and administrative units on campus.

University Communications manages, produces, and publishes University content for internal and external audiences through several of its own media channels including:

- *UNC Charlotte*, the University's quarterly print magazine
- *Inside UNC Charlotte*, the University's internal news website at [inside.uncc.edu](http://inside.uncc.edu). The monthly television segment that airs on WTVI-TV, the University's Time Warner Cable channel in Charlotte, also bears this name.
- *The Live Wire*, a weekly live streaming webcast on [inside.uncc.edu](http://inside.uncc.edu)
- Official University Social Media including Facebook, Twitter, YouTube, Flickr, and Blogger

University Communications also garners external media coverage by writing and pitching news, coordinating interviews with experts on campus, and maintaining relationships with local and regional media



outlets.

Experts in this unit also script executive communications for the Chancellor and other University administrators and provide crisis communications planning and counsel.

In addition to the work of the central staff, University Communications collaborates with the University's distributed communicators to ensure alignment of all internal and external communications.

# Faculty *Directory*



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# Faculty

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(Note: The year in parentheses represents the year of appointment)

**Philip L. Dubois (2005)**, *Chancellor*, A.B., University of California, Davis; M.S., Ph.D., University of Wisconsin-Madison

**Joan F. Lorden (2003)**, *Provost and Vice Chancellor for Academic Affairs*, B.A., The City College of New York; M.S., Ph.D., Yale University

**Jayaraman Raja (1989)**, *Senior Associate Provost, Academic Affairs*, B.E., M.Sc., University of Madras, India; Ph.D., Indian Institute of Technology

**Willie M. Abel (2013)**, *Assistant Professor, School of Nursing*, B.S.N., University of North Carolina at Charlotte; M.S.N., Ph.D., University of North Carolina at Greensboro

**Lyndon P. Abrams (2001)**, *Associate Professor, Department of Counseling*, B.S., Charleston Southern University; M.Ed., Clemson University; Ph.D., Texas A&M University-Commerce

**L. Dean Adams (2013)**, *Associate Dean for Performing Arts Services, College of Arts + Architecture*, B.A., Tufts University; M.A., University of Maryland; M.F.A., Florida State University

**Ryan S. Adams (2007)**, *Associate Professor, Department of Electrical and Computer Engineering*, B.S., B.S.E.E., M.S., Ph.D., University of Idaho

**Kirill Afonin (2015)**, *Assistant Professor, Department of Chemistry*, M.S., Saint Petersburg State Polytechnic University; Ph.D., Bowling Green State University

**Ishwar D. Aggarwal (2011)**, *Research Professor, Department of Physics and Optical Science*, M.C.E., Ph.D., The Catholic University of America

**Rebecca Agosta (2013)**, *Lecturer, University Writing Program*, B.S.E.D., Appalachian State University; M.A., University of North Carolina at Charlotte

**Lynn A. Ahlgrim-Delzell (2008)**, *Associate Professor, Department of Educational Leadership*, B.S., M.S., Illinois State University; Ph.D., University of North Carolina at Greensboro

**Dewan Ahmed (2013)**, *Teaching Assistant Professor, Department of Computer Science*, B.S., M.S., Bangladesh University of Engineering and Technology; Ph.D., University of Ottawa

**Elizabeth Ajazi (2014)**, *Lecturer, Department of Mathematics and Statistics*, B.S., M.S., University of North Carolina at Charlotte

**Srinivas Akella (2009)**, *Professor, Department of Computer Science*, B.Tech., Indian Institute of Technology; M.S., Ph.D., Carnegie Mellon University

**Yildirim M. Aktas (1989)**, *Associate Professor, Department of Physics and Optical Science*, B.S., Middle East Technical University; Ph.D., University of Missouri at Columbia

**Ehab Al-Shaer (2009)**, *Professor, Department of Software and Information Systems; and Director of the CyberDNA Center*, B.S., King Fahad University; M.S., Northeastern University; Ph.D., Old Dominion University

**Robert F. Algozzine (1988)**, *Professor, Department of Educational Leadership*, B.S., Wagner College; M.S., State University of New York at Albany; Ph.D., Pennsylvania State University

**Ana-Isabel Aliaga-Buchenau (2002)**, *Associate Professor, Department of Languages and Culture Studies*, B.A., Georg-August Universitat Gottingen; M.A., Ph.D., University of North Carolina at Chapel Hill

**Craig J. Allan (1992)**, *Chair and Professor, Department of Geography and Earth Sciences*, B.Sc., University of Manitoba; M.Sc., Trent University; Ph.D., York University

**John M. Allemeier (2006)**, *Associate Professor, Department of Music*, B.M., Augustana College; M.M., Northwestern University; Ph.D., University of Iowa

**Gretchen Alterowitz (2009)**, *Associate Professor, Department of Dance*, B.A., University of Montana; M.F.A., University of Iowa

**Louis (Ted) H. Amato (1980)**, *Professor, Department of Economics*, A.B., Lenoir-Rhyne College; M.A., University of North Carolina at Greensboro; Ph.D., University of South Carolina

**James E. Amburgey (2005)**, *Associate Professor, Department of Civil and Environmental Engineering*, B.S.C.E., University of North Carolina at Charlotte; M.S., Ph.D., Georgia Institute of Technology

**Takiyah N. Amin (2011)**, *Assistant Professor, Department of Dance*, B.A., State University of New York at Buffalo; M.F.A., Virginia Polytechnic Institute and State University; Ph.D., Temple University

**Heather T. Anderson (2007)**, *Lecturer, School of Nursing*, A.A., B.S.N., M.S.N., Gardner-Webb University

**Kelly Anderson (2000)**, *Associate Professor, Department of Special Education and Child Development*, B.S., M.S., Drake University; Ph.D., University of North Carolina at Greensboro

**Mary Jo Anderson (2011)**, *Clinical Assistant Professor and Supervisor of Student Teaching, Office of Field Experiences, College of Education*, B.A., College of St. Scholastica; M.S., Ed.D., Kansas State University

**Benny J. Andrés, Jr. (2007)**, *Associate Professor, Department of History*, B.A., San Diego State University; M.A., Ph.D., University of New Mexico

**Ahmed A. Arif (2007)**, *Associate Professor, Department of Public Health Sciences*, B.S., Sindh Medical College; M.S., Western Kentucky University; Ph.D., University of Texas at Houston

**Jake Armour (2005)**, *Lecturer, Department of Geography and Earth Sciences*, B.S., M.S., University of New Mexico

**Laura M. Armstrong (2013)**, *Assistant Professor, Department of Psychology*, B.S., Brown University; M.S., Ph.D., Pennsylvania State University

**Denis G. Arnold (2008)**, *Surtman Distinguished Scholar in Business Ethics; and Professor, Department of Management*, B.S., Lewis and Clark College; M.A., Ph.D., University of Minnesota

**Brian K. Arreola (2009)**, *Associate Professor, Department of Music*, B.M., St. Olaf College; M.M., Indiana University; Ph.D., Indiana University

**Bruce A. Arrigo (2001)**, *Professor, Department of Criminal Justice and Criminology*, B.A., Saint Joseph's University; M.A., Duquesne University; Ph.D., Pennsylvania State University

**Susan T. Arthur (2006)**, *Associate Professor, Department of Kinesiology*, B.S., M.S., Ph.D., University of Toledo, Ohio

**Kathryn Asala (2007)**, *Undergraduate Coordinator and Lecturer, Department of Chemistry*, B.S., Truman State University; Ph.D., Miami University

**Vasily Astratov (2002)**, *Professor, Department of Physics and Optical Science*, Dipl., St. Petersburg State University; Ph.D., Ioffe Physical-Technical Institute

**Anna Athanasopoulou (2013)**, *Lecturer, Department of Mathematics and Statistics*, B.S., Aristotle University of Thessaloniki; M.A., Ph.D., University of North Carolina at Charlotte

**Mary L. Atkinson (2013)**, *Assistant Professor, Department of Political Science and Public Administration*, B.A., Guilford College; M.A., The American University; Ph.D., University of North Carolina at Chapel Hill

**Bruce Auerbach (2002)**, *Professor, Department of Theatre*, B.A., Auburn University; M.F.A., University of Illinois at Urbana-Champaign

**Judy R. Aulette (1986)**, *Associate Professor, Department of Sociology; and Adjunct Associate Professor, Women's and Gender Studies*, B.A., M.A., Wayne State University; Ph.D., Michigan State University

**JuliAnna Avila (2010)**, *Assistant Professor, Department of English*, B.A., University of Redlands; M.A.Ed., Ph.D., University of California at Berkeley

**Joel D. Avrin (1984)**, *Professor, Department of Mathematics and Statistics*, A.B., M.A., Ph.D., University of California, Berkeley

**Mona Azarbayjani (2010)**, *Assistant Professor, Department of Art and Art History*, B.S., Iran University of Science and Technology; M.ARCH, Iran University of Science and Technology; Ph.D., University of Illinois atampaign

**Yamilka Baez-Rivera (2014)**, *Lecturer and Lab Manager, Energy Production and Infrastructure Center*, B.S.E.E., M.S.E.E., University of Puerto Rico at Mayagüez; Ph.D., Mississippi State University

**Debra D. Baker (2003)**, *Lecturer, Department of Communication Studies*, B.A., University of North Carolina at Charlotte; M.A., University of North Carolina at Greensboro

**E. E. Balcos (2005)**, *Associate Professor, Department of Dance*, B.A., The Colorado College, M.F.A., University of Iowa

**Defloris (Dee) M. Baldwin (2009)**, *Associate Dean, Director, and Professor, School of Nursing*, R.N., Ph.D., FAAN

**Jeffrey D. Balmer (2006)**, *Associate Professor, School of Architecture*, B.E.S., B.Arch., University of Waterloo; M.Arch., Iowa State University

**Valerie G. Balog (2005)**, *Clinical Assistant Professor, Department of Counseling*, B.S., M.A., John Carroll University; Ph.D., Kent State University

**George C. Banks (2015)**, *Assistant Professor, Department of Management*, B.A., College of William & Mary; M.A., University of New Haven; Ph.D., Virginia Commonwealth University

**Saiful Bari (2015)**, *Visiting Senior Lecturer, Department of Mechanical Engineering*, B.S., M.S., Bangladesh University; M.S., Ph.D., University of Reading

**Amy Barsanti (2009)**, *Lecturer, School of Social Work*, B.S.W., Marist College; M.S.W., Fordham University

**Jeffrey Barto (1992)**, *Lecturer, Department of Kinesiology*, B.S., Slippery Rock University; M.Ed., Ph.D., University of Pittsburgh

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**Peter L. Wong (1988)**, *Associate Professor, School of Architecture*, B.A., University of Washington; M.Arch., University of Pennsylvania

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**Wendy M. Wood (1994)**, *Associate Professor, Department of Special Education and Child Development*, B.A., Lynchburg College; M.Ed., Ph.D., Virginia Commonwealth University

**Stephanie J. Woods (2013)**, *Carol Grotnes Belk Endowed Chair of Nursing and Professor, School of Nursing*, B.S.N., Edinboro State College; M.S.N., Edinboro University of Pennsylvania; Ph.D., Wayne State University

**Albert Wray (2012)**, *Lecturer, University Writing Program*, B.A., Appalachian State University; M.A., University of North Carolina at Charlotte

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**Mingxin Xu (2004)**, *Associate Professor, Department of Mathematics and Statistics*, M.S., Syracuse University; M.S., Ph.D., Carnegie Mellon University

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**Diane L. Zablotsky (1992)**, *Faculty Director, Levine Scholars Program; and Associate Professor, Department of Sociology*, B.S., Pennsylvania State University; M.A., State University of New York at Binghamton; Ph.D., University of Maryland

**Wlodek Zadrozny (2013)**, *Associate Professor, Department of Computer Science*, M.S., University of Warsaw; Ph.D., Polish Academy of Sciences

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## Emeritus Faculty

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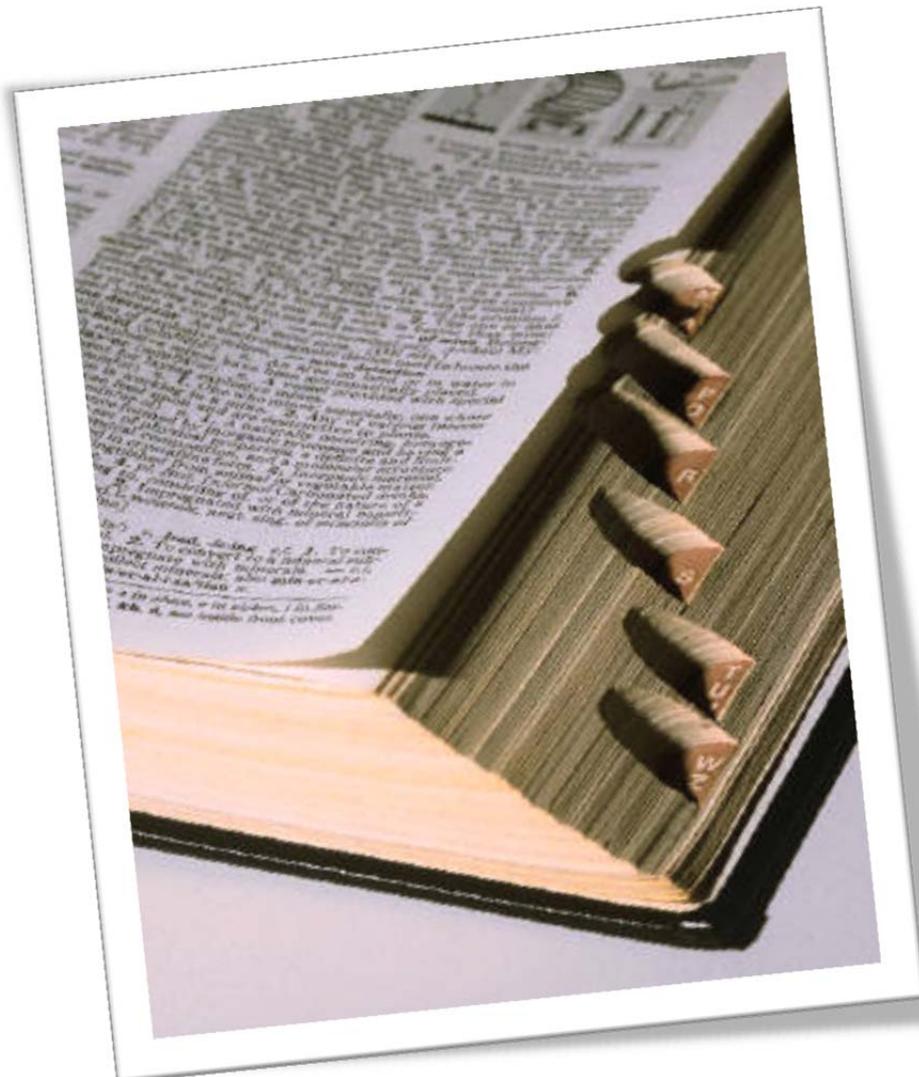
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# Glossary of Terms



# Glossary of Terms

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## -123-

**49ers** – The official name for student athletic teams at UNC Charlotte.

**49er Card** – The ID Card that proves a student is a member of the campus community and entitled to certain services. It is required to check out materials, obtain services, and utilize facilities across campus. It also allows students to access their residence, obtain meals, and make purchases wherever the 49er Account is accepted.

**49er Express** – One-stop shopping for student services via the Web. It combines various systems, user interfaces, and technical solutions already available to the UNC Charlotte community in a single, consistent web-based interface. Students should use 49er Express to access web-enabled student services, course information, e-mail, and calendar scheduling.

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## -A-

**Academic advising** – A meeting between a student and an advisor to discuss the student's academic plan of study, course selections prior to registration, and/or career plans.

**Academic bridge program** - A post-secondary school program that helps students transition from high school to a university.

**Academic calendar** – An official list of dates and deadlines found at the beginning of this *Catalog* and on the website for the Office of the Registrar. The academic calendar specifies the dates for semesters and terms, enrollment periods, examination periods, holidays, periods classes are not in session, and commencement.

**Academic career** – The period during which a student is working at an institution toward completion of one or more degrees.

**Academic discipline** – A subject area of study (e.g., English, marketing, psychology).

**Academic Petition** – A form by which students request to be granted an academic exception because their extenuating circumstances prevent them from following established rules, policies, and procedures.

**Academic probation** – A status resulting from unsatisfactory academic work; a warning that the student must improve academic performance or be dismissed after a specific period of time.

**Academic rank** – the rank of a faculty member, such as professor, associate professor, assistant professor, or lecturer. (*See individual listings for details.*)

**Academic record** – Official transcript.

**Academic standing** – The scholastic standing of a student based on his/her grade point average (GPA).

**Academic year** – The period of formal academic instruction, extending from August through May. It is divided into Fall and Spring semesters. Students may also take courses during Summer sessions.

**Accreditation** – UNC Charlotte is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). SACS is the recognized regional accrediting body in the eleven U.S. Southern states (Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia) and in Latin America for those institutions of higher education that award associate, baccalaureate, master's or doctoral degrees. Accreditation is certification that an institute of higher education meets a set of criteria established by SACS.

**Access** – Ensuring equal opportunity for education, particularly for students from historically underrepresented populations and students with disabilities.

**Accommodations** – Disability Services counselors meet with qualified students to determine and provide reasonable and appropriate accommodations that support the student's educational goals.

**ACT** – A test published by American College Testing which measures a student's aptitude in mathematical and verbal comprehension and problem solving. Many colleges and universities, including UNC Charlotte, require students to take this test and submit their test scores when they apply for admission. While UNC Charlotte accepts the ACT, the SAT is preferred. Most students take the ACT or the SAT during their junior or senior year of high school.

**Add/drop** – A designated time period at the beginning of each semester when a student may add or drop a course.

**Adjunct faculty** – Part-time or temporary faculty member. It may also denote a faculty member from another academic department whose research or teaching interests overlap substantially with those of the appointing department.

**Admissions counselor** – A person working in the Office of Admissions who assists prospective students by providing information and assisting in the preparation of application materials.

**Advanced Placement (AP)** – Standardized courses administered by The College Board offered in high school, the completion of which may result in credit for some of the courses normally required for an undergraduate degree. Awarding of credit based on AP is granted to a student based on prior study or experience (usually indicated by the student's performance on the AP examination).

**Advisor** – A department or college-based faculty or staff member who meets with students each semester to discuss curricular choices and progress toward achieving educational goals.

**Alma mater** – The school from which one has graduated, as in "My alma mater is The University of North Carolina at Charlotte."

**Alumna/Alumnus (Alumni)** – A female/male (group) who attended or graduated from a particular college or university.

**Annotated bibliography** – A list of citations of books, articles, and documents followed by a brief descriptive paragraph. The purpose of the annotation or description is to inform the reader of the relevance, accuracy, and quality of the sources cited.

**Articulation agreement** – A written agreement listing courses at one educational institution that are equivalent to courses at another educational institution. Articulation agreements facilitate the smooth transition of students through the secondary, community college, and university educational systems.

**Assessment** – The act of evaluation or appraisal.

**Assignment** – Required reading and course work to be completed outside of the classroom as determined by instructors. Many instructors list assignments on a syllabus, which is distributed at the beginning of the semester. Other instructors give assignments during class.

**Assistant Professor** – usually the entry-level rank for a faculty member who holds a doctorate, although this depends on the institution and the field.

**Associate Professor** – the mid-level rank of a faculty member. It usually indicates that the individual has been granted tenure at the institution.

**Associate's degree** – A degree traditionally awarded by community or junior colleges after two years of study, or completion of 60 to 64 credit hours.

**Audit** – Enrolling in a course on an audit basis means the course will not count for credit or impact GPA. In some cases, the audit fee is less than the tuition rate. Registration for audit often requires the permission of the instructor.

**Auditory learner** – Learns through listening; these students learn best through verbal lectures, discussions, talking things through, and listening to what others have to say. Auditory learners interpret the underlying meanings of speech through listening to tone of voice, pitch, speed and other nuances. Written information may have little meaning until it is heard. These learners often benefit from reading text aloud.

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## -B-

**B.A. or B.S.** – See *Bachelor's degree or baccalaureate*.

**Bachelor's degree or baccalaureate** – The degree of bachelor of arts (B.A.) or bachelor of science (B.S.), typically requiring a minimum of 120 hours of specified course work. A bachelor's degree is comprised of General Education courses, a major program(s), elective courses, and, in some cases, a minor program(s), and, in general, is completed in four years.

**Blue book** – A booklet (often with a blue cover, where it derives its name) that contains lined paper for writing essay test answers.

**Bridge program** – See *Academic bridge program*.

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## -C-

**Campus** – The area where the main buildings of UNC Charlotte are located.

**Cashier** – The office (or person) where fees/tuition are paid.

**Catalog** – A resource of all academic policies and procedures, college and degree requirements, faculty,

and course descriptions. UNC Charlotte has both an *Undergraduate Catalog* and *Graduate Catalog*.

**Catalog year** – The year during which the regulations of a specific edition of the catalog apply.

**Certificate** – A structured set of professionally oriented courses designed to provide recognition that the student has completed coursework in an applied area of focus. For degree-seeking students, a certificate program may either complement or be concurrent with a traditional program of study. The certificate appears on the official transcript.

**CFNC** – College Foundation of North Carolina. A comprehensive website used for applying to colleges, exploring career opportunities, and applying for state and federal aid.

**Chancellor** – The chief administrative officer of UNC Charlotte. At some universities, this position is referred to as *president*. To date, UNC Charlotte has had four chancellors.

**Chancellor's List** – The top honors list which recognizes undergraduate students with outstanding records of academic performance (a GPA of 3.8 or greater) and who meet all other criteria. For details, see the Degree Requirements and Academic Policies section of this *Catalog*.

**Class standing** – Refers to an undergraduate student's official year in school - Freshman, Sophomore, Junior, or Senior – and is based on the number of earned credit hours.

**Classification** – Level of progress toward a degree based on the number of earned semester/credit hours.

**Clinical faculty** – A part-time teaching position with limited research responsibilities.

**College** – An academic unit of the University. Each of the seven discipline-based colleges at UNC Charlotte represents an organization of related departments and/or schools.

**Colloquium** – A gathering of scholars to discuss a given topic over a period of a few hours to a few days.

**Commencement** (*also known as Graduation*) – A formal ceremony in which the University awards degrees to graduating students at the end of each Fall and Spring semester.

**Commencement Marshals** – At each commencement ceremony, the University honors the juniors with the highest grade point averages by inviting them to serve

as the marshals who lead the processions of graduates, faculty members, and the platform party.

**Community college** – A two-year traditional school, offering programs leading to an Associate's degree and, typically, many noncredit courses for community members not seeking a degree. Also called *junior college*.

**Concentration** – A structured plan of study within a major. (*For example, Public Relations is a concentration within the Communications Studies undergraduate major; Children's Literature is a concentration within the M.A. in English graduate program.*) The number of credit hours for a concentration varies, but is included within the credit hours for the major. The concentration appears on the official transcript.

**Contact hours** – The number of hours a class meets per week.

**Continuing education course** – A course outside the regular academic instructional program, for which standard academic fees and tuition are (usually) not charged. While most often these courses do not earn academic credits, they can provide necessary education or experience for professional development, or lead to professional certifications.

**Convocation** – A gathering of senior administration, faculty, administrative staff, and students to hear statements about the major long-term goals and values of the campus, as well as the major immediate plans and issues confronting UNC Charlotte for the upcoming year, as perceived by the Chancellor, the Provost, and the Faculty President. It is hoped that these presentations will help build a greater shared understanding of the mission of the University and the challenges confronting it. The Convocation is held at the beginning of the academic year.

**Core courses** – Required courses in a major program.

**Corequisite** – Specific conditions, requirements, or courses that must be completed while taking another course (i.e., a lab).

**Course** – A specific subject studied within a limited period of time. Courses may utilize lectures, discussion, laboratory, seminar, workshop, studio, independent study, internship, or other similar teaching formats to facilitate learning.

**Course load** – Number of credit hours for which a student is enrolled during a semester.

**Course number** – The four-letter and four-digit identification code that identifies each course taught at the University, such as ENGL 2126 or PSYC 8151.

**Course overload** – Defined at UNC Charlotte as over 18 credit hours for undergraduates and over 12 credit hours for graduates. Approval is required to take an overload.

**Course sections** – Course numbers may be divided when classes also meet in discussion sections, or when a course number has sections pertaining to different topics under the same heading. For instance, a course called Architecture Topical Studio may have section 001 – Cycloramic Models and section 002 – Building Envelopes.

**Course title** – The name of a specific course that indicates subject and content. *Introduction to Creative Writing* is the course title of ENGL 2126; *Behavior Disorders* is the course title for PSYC 8151.

**Coursework** - A specified amount of work undertaken in a course which leads to its completion; also, the courses taken to attain a degree in a specified program.

**Credit course** – A course with specified learning goals which the student is required to meet in order to receive a grade. The course may be applied toward the fulfillment of degree requirements at the University.

**Credit hour** – An amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) 750 minutes of classroom or direct faculty instruction and a minimum of 1500 minutes of out-of-class student work for one semester hour of credit; or

(2) At least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities or instructional modes of delivery as established by the institution including distance education, hybrid, and face-to-face instruction; laboratory work; internships; practica; studio work; and other academic work leading to the award of credit hours.

**Critical thinking** – The practice of thinking things through, in which a student must carefully describe something (an event, a book, a person, etc) and evaluate it according to some relevant criterion, considering significant alternatives. Critical thinking is

a core component of *liberal education* and of the *general education curriculum*.

**Cross-Listed Course** – A single course which is simultaneously listed in the schedule of course offerings by two or more academic departments. They share the same meeting times, room, instructor(s), and curriculum. Students may only receive credit for the single section of the cross-listed course for which they are registered. Credit will not be awarded for a course where credit has been awarded for a cross-listed course.

**Cum Laude** – Honorary recognition of the success of a graduating student. Translates to “With Honor.” For UNC Charlotte, it requires a cumulative GPA of at least 3.4, but less than 3.8.

**Curriculum** – A program of courses that meets the requirements for a degree in a particular field of study.

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## -D-

**Dean** – The highest authority within an academic division of study. An Academic Dean heads each College. In addition to the academic deans, there is also a Dean of Students within the Division of Student Affairs.

**Dean's List** – An honors list which recognizes undergraduate students who earn a grade point average of at least 3.4 and not more than 3.79 and meet all other criteria. For details, see the Academic Regulations section of this *Catalog*.

**Deferment** – The postponing of a fee or tuition, which will be paid at a later date.

**Degree** – Diploma or title awarded to a student who completed a prescribed course of study.

**Degree program** – An organized sequence of courses that leads to the awarding of a college degree at the undergraduate or graduate level. Sometimes referred to as *Curriculum*.

**Degree requirement** – A set of requirements, which a student must fulfill before he/she graduates.

**Department/School** – A unit within a college representing a discipline. For example, the Department of English is in the College of Liberal Arts & Sciences, and the School of Nursing is in the College of Health and Human Services.

**Department chair** – The faculty member in charge of an academic department of the university.

**Directory Information** - Information in a student's education record that would not generally be considered harmful or an invasion of privacy if disclosed. At UNC Charlotte, directory information consists of the student's name, major field of study, dates of attendance, enrollment status, and degrees and awards (including scholarships) received. See the Family Educational Rights and Privacy Act (FERPA) section of this Catalog for more details.

**Disability** – The physical and/or learning challenge -- permanent or temporary – of a student that may impact their academic plan. Accommodations are provided for students with documented disabilities.

**Discipline** – An area of study representing a branch of knowledge, such as psychology.

**Dissertation** – The major research project normally required as part of the work for a doctoral degree. Dissertations are expected to make a new and creative contribution to the field of study, or to demonstrate one's excellence in the field.

**Dissertation Chair** – A graduate faculty member responsible for directing a doctoral student's dissertation research. This may or may not be the student's academic advisor.

**Distance education/learning** – Formal learning which occurs when students and instructor are separated by geographic distance or by time. Access to the instructor is gained through communications technology such as the Internet, interactive videoconferencing, TV, and email.

**Doctoral degree** – The most advanced degree, awarded following additional study, often after completion of a master's degree.

**Double major** – Studying simultaneously for two degrees in two majors, fulfilling the course requirements for both majors.

**Drop/add** – A designated time period at the beginning of each semester when a student may add or drop a course.

**Dual/joint degree** – Involves a student's working for two different University degrees in parallel, either at the same institution or at different institutions (sometimes in different countries), completing them in less time than it would take to earn them separately. The two degrees might be in the same subject area (especially when the course is split between countries), or in two different subjects.

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-E-

**Elective** – Course selected at a student's discretion. The course is not required in the major field of study, but may be used for credit toward a degree. Directed electives are partially restricted (selected from a specified group of courses identified to fulfill a particular requirement). Free electives are selected from any courses for which the student has proper prerequisites.

**Emeritus faculty** – A member of the faculty who has retired but retains the honorary title that corresponds with his/her last held position at the University.

**Equivalency examination** – An examination designed to demonstrate knowledge in a subject where the learning was acquired outside a traditional classroom. For example, a student who learned management skills while working at a restaurant could take an equivalency exam, if offered, to earn credit in small business management.

**Essay** – A method of examination, or homework, by which a student presents his/her knowledge of the subject by writing a composition.

**Experiential learning** – Actively engaging students in a work and/or educational experience where they may make their own discoveries and experiment with knowledge themselves, instead of hearing or reading about the experiences of others.

**Extracurricular activities** – Activities pertinent to student life, but not part of the regular classroom study (e.g., athletics, publications, and social organizations). Also referred to as *co-curricular activities*.

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-F-

**Facilitator** – The person in an interactive classroom who assists the instructor or students with distribution of handouts, collection of tests and evaluations, technical and troubleshooting issues, etc.

**Faculty** – The teaching and administrative staff and those members of the administration having academic rank in an educational institution.

**FAFSA (Free Application for Federal Student Aid)** – A form that all students applying for financial assistance are required to complete in order to determine eligibility for financial aid. This form is available from the Office of Student Financial Aid.

**FAQ – Frequently Asked Questions.** On the Internet and in print, information sources may provide a list of FAQs to assist newcomers in learning more on their own.

**Fees** – An amount of money charged by institutions (in addition to tuition) to cover the costs of certain services (health services, athletic center, student activities, registration, parking, use of lab equipment or computers, etc.).

**FERPA** – The Family Educational Rights and Privacy Act (FERPA) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.

**Final exam** – The last, and often the most comprehensive, examination of the entire semester's course material.

**Financial aid/assistance** – Money available from various sources to help students pay for college. Students must establish eligibility. Funds can be competitive.

**Financial aid package** – Total amount of financial aid given to a student. Federal and non-Federal aid such as grants, loans, and work-study are combined to help meet the student's need.

**Financial need** – In the context of student financial aid, financial need is equal to the cost of education (estimated costs for college attendance and basic living expenses) minus the expected family contribution (the amount a student's family is expected to pay, which varies according to the family's financial resources).

**Fraternity** – A social organization, most often for male students, with specific objectives, rules and regulations.

**Full-time student** – An undergraduate student with a course load of at least 12 credit hours, as defined by eligibility for federal financial aid, or a graduate student with a course load of at least 9 credit hours. However, undergraduate students need to average a course load of 15 credit hours per semester to graduate within four years.

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-G-

**General Education Requirements** - These courses provide undergraduate students, regardless of their majors, with the foundations of a *liberal education*. For details, see the General Education Program section of the *Undergraduate Catalog*.

**GPA (Grade Point Average)** – The grade point average for an undergraduate student is determined by adding all accumulated quality points together, and then dividing by the total number of GPA hours the student

has attempted, excluding those for which the student received a grade of I, IP, W, H, P, AU, or N. In computing the grade point average, only those credits attempted at UNC Charlotte or through the Charlotte Area Educational Consortium are included. Refer to the example below.

**Example of Transcript:**

Subject	Course	Grade	Credit Hours	Quality Points
AMST	2050	P	3.000	0.00
CHEM	1251	F	3.000	0.00
CHEM	1251L	F	1.000	0.00
UWRT	1101	B	3.000	9.00
ENGR	1201	C	2.000	4.00
LBST	2101	C	3.000	6.00
MATH	1241	C	3.000	6.00

**Term Totals (Undergraduate)**

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
<b>Current Term</b>	18.000	14.000	14.000	15.000	25.00	1.667
<b>Cumulative</b>	18.000	14.000	14.000	15.000	25.00	1.667

**Example of GPA Calculation:**  
 GPA = Quality Points/GPA Hours; 25/15=1.667

**Grades** – Evaluative scores provided for each course, and often for individual assignments, examinations, or papers written for that course. There are letter grades (usually A, B, C, D, F) and number grades (usually percentages from 0% to 100%, or on a scale of 0.0 to 4.0). Some undergraduate courses use a *pass/no credit* system with no grades; some graduate courses use a *pass/unsatisfactory* system with no grades.

**Graduate studies** – Coursework beyond the bachelor's degree that leads to a master's, professional, or doctoral degree.

**Graduation (also known as Commencement)** – A formal ceremony in which the University awards degrees to graduating students at the end of each Fall and Spring semester.

**Graduation with Distinction** – Graduating with honors. To be eligible to graduate with distinction, a student must have a certain grade point average computed on at least 48 credit hours of credit completed in residence at UNC Charlotte. (See *Summa Cum Laude*, *Magna Cum Laude*, and *Cum Laude*)

**Grant** – A sum of money given to a student for the purposes of paying at least part of the cost of college. Grants and scholarships do not have to be repaid.

**GRE (Graduate Record Examination)** – A standardized test that is an admissions requirement for many graduate schools. The exam aims to measure verbal reasoning, quantitative reasoning, analytical writing, and critical thinking skills that have been acquired over a long period of time and that are not related to any specific field of study. The GRE General Test is offered as a computer-based exam administered by selected qualified testing centers.

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## -H-

**Hold Flags** – See *Registration hold flags*.

**Homecoming** – An annual event held by the University to honor alumni.

**Honors** – A special rank or distinction conferred by the University upon a student for excellence in scholarship (based on their GPA). For details, see the Academic Regulations section of this *Catalog*. When referring to a course of study, an honors course is for academically talented, enthusiastic, and motivated students.

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## -I-

**Incomplete grade** – An "I" (incomplete grade) may be assigned by a faculty member to a student who carried coursework satisfactorily until near the end of the semester, but who was then unable to complete the course, possibly including the final exam. If the student does not remove the "I" within 12 months, the "I" will be changed to "F," "U," or "N," as appropriate. See the Degree Requirements and Academic Policies section of this *Catalog* for complete details.

**Independent study** – A method of receiving credit for study or research independent of the assignments of any specific course, but supervised and graded by a faculty member.

**Interdisciplinary** – A course or program of study involving two or more major areas/departments. For example, Women's and Gender Studies is an interdisciplinary program offering a minor within the College of Liberal Arts & Sciences.

**Internet course** – A web-based course completed online. Also called an *online course*. May or may not be self-paced.

**Internship** – A work experience, paid or non-paid, that provides students with practical experience, most often in their field of study.

**Intramural/fitness/sport clubs** – Programs designed to encourage students to participate in a variety of competitive, instructional, and recreational organized sports activities.

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## -J-

**Job fair** – Also known as a *career fair* or *career expo*, it provides a place for employers and recruiters, to meet with student job seekers, typically for entry-level positions. Fairs usually include company or

organization tables or booths where résumés may be collected. Occasionally, it is also where students may perform their first interviews with a prospective employer.

**Juris Doctor (J.D.)** – A professional doctorate and first professional graduate degree in law.

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## -K-

**Kinesthetic learner** – A student who learns best by actually carrying out a physical activity, rather than listening to a lecture or merely watching a demonstration.

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## -L-

**Laboratory (lab)** – A classroom where students apply material in small-group situations that include experiments, assignments, and projects. A lab course typically has an "L" after the course number.

**Learning communities** – Small groups of new students and faculty who share common interests. Students enroll in two or more of the same courses and, in many cases, live together in the same residence hall.

**Learning strategies** – Activities that help people use their own learning style to best approach new learning.

**Learning style** – The way a person takes in, understands, expresses and remembers information; the way a person learns best. See *auditory, kinesthetic, and visual learner*.

**Leave of Absence** – Graduate students only may seek a leave from their studies for up to 12 months. During this time, they may not use any University resources.

**Lecture** – A teaching method in which the professor presents information to the students who take notes, ask questions, and have dialogue with the professor.

**Liberal Education** – The foundation of the baccalaureate degree in the United States. *Liberal education* strives to make students liberally educated citizens of the world by emphasizing knowledge across disciplines, critical thinking, and application of content. The *General Education Requirements* work toward this end.

**Loan** – A type of financial aid that is available to students. An education loan must be repaid. In some cases, payments do not begin until the student finishes school.

**Lower division course** – A course that is intended for freshman and sophomore level students (typically 1000 and 2000 course numbers) that contains introductory content.

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## -M-

**Magna Cum Laude** – High honorary recognition of the success of a graduating student. Translates to “With Great Honor.” For UNC Charlotte, it requires a cumulative GPA of at least 3.8, but less than 4.0.

**Major** – A degree-seeking student's primary field of study. For undergraduate students, a major is a structured plan of study requiring a minimum of 30 credit hours. It must be feasible for undergraduate students to complete degree requirements within 128 credit hours. The major appears on the official transcript.

**M.A./M.S.** – See *Master's degree*.

**Master's degree** – An advanced degree (e.g., Master of Arts [M.A.], Master of Science [M.S.]) awarded by a university after completion of studies beyond a bachelor's degree.

**Matriculated student** – A student who has been accepted for admission to the educational institution, has registered in a curriculum, and is pursuing courses toward a degree or certificate. See also *Non-matriculated student*.

**Matriculation** – The first enrollment following admission as a student.

**Mid-term exam** – An (often major) examination given in the middle of the semester that tests the student's knowledge of information taught in the course from the beginning of the course up until the time of examination.

**Minor** – An undergraduate minor represents an optional, secondary field of study for a degree-seeking undergraduate student; no undergraduate student may declare a major and a minor in the same discipline. An undergraduate minor is a structured plan of study requiring a minimum of 15 credit hours and no more than 29 credit hours exclusive of student teaching. A minor should require significant additional coursework beyond what is already required for a related major. The minor appears on the official transcript.

**Multiple-choice examination** – An examination in which questions are followed by two or more answers, from which a student selects the correct answer.

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## -N-

**Niner Nation** – The collective UNC Charlotte student body.

**Niner Nation Family** – The collective parent and family members of UNC Charlotte students.

**Noble Niner** – The honor code created by the Student Government Association which solidifies the high standard of morals, principles, and integrity that all students should strive to uphold in order to bolster the growing reputation of excellence at UNC Charlotte.

**Non-credit course** – A class that typically meets less frequently than a credit course and that contributes toward personal or occupational development.

**Non-matriculated student** – A student who has not yet been accepted for admission to the college, has lost matriculated status by not enrolling in coursework for one semester, or has been suspended from a program because of failure to maintain good academic standing. See also *Matriculated student*.

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## -O-

**Objective test** – An examination in which questions requiring a very short answer are posed. It can be multiple choice, true/false, fill-in-the-blank, etc. The questions are related to facts (thus objective) rather than to opinions (subjective).

**Online courses** – Courses which are taught and taken either partially or wholly over the Internet.

**Open-book examination** – A student is permitted to use his/her textbook, and often classroom notes, during the exam.

**Oral examination** – A student answers questions by speaking rather than by writing.

**Orientation** – An organized gathering, held at the beginning of every semester, which provides useful information to new students to acclimate them with the college campus and student life.

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## -P-

**Part-time student** – An undergraduate student with a course load of less than 12 credit hours, or a graduate student with less than 9 credit hours. See also *Full-time student*.

**Pass/no credit course** – A course that rates a student's performance on a pass/no credit basis, rather than on grades.

**Ph.D.** – The highest academic degree awarded by a university to students who have completed studies beyond the bachelor's and/or master's degrees, and who have demonstrated their academic ability in oral and/or written examinations and through original research presented in the form of a dissertation (thesis). Also called a *doctoral degree*.

**Placement test** – An examination used to test a student's academic ability in a certain subject so he/she can be placed in a course at an appropriate level. In some cases, students may get course credits after scoring high on a placement test.

**Plagiarism** – Passing off someone else's work as your own or using the intellectual property of someone else without giving proper credit. Students must follow certain guidelines to properly acknowledge the use of other people's ideas or words in their work (unless such information is recognized as common knowledge). This is considered a serious offense at every institution, and is subject to disciplinary action that may include failure in a course and/or dismissal from the University.

**Pop-quiz** – A quiz that the instructor has not previously informed the students about.

**Postsecondary education** – Refers to all education for students after high school, including programs at community colleges, technical colleges, and four-year colleges and universities.

**Prerequisites** – Specific conditions, requirements, or courses that must be completed before enrolling in another course. Course prerequisites (if any) can be found within each course description. For example, Spanish I is a prerequisite for Spanish II.

**Proctor** – A person who supervises the taking of an examination to be certain there is no cheating, and that other rules are followed.

**Professional development courses** – Courses offered to improve knowledge and skills in specific professional areas, such as professional certification programs. They are usually not offered for academic credit.

**Professor** – the highest rank attained by a faculty member. Sometimes also called *Full Professor*. A small fraction of tenured faculty are awarded the title of *Distinguished Professor* to recognize outstanding and broad contributions to the advancement of a field of study.

**Provost** – Reporting to the Chancellor, the Provost is the chief academic officer who oversees all academic affairs activities, including research and faculty. The Deans of each College report to the Provost.

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-Q-

**Quiz** – A short test, written or oral, usually less formal and usually carries less grade weight than an exam.

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-R-

**Readmission** – Approval of the enrollment or admission of a former student.

**Reassignment of Duties** – A period of time (usually one semester) when a faculty member is not teaching, but concentrating on his/her own education or research.

**Registrar** – The official at the University who is responsible for maintaining student records. The Office of the Registrar plans and oversees registration, academic record maintenance, transcript preparation, graduation, a degree audit report system, and curricular records.

**Registration** – Students select courses to enroll in for the subsequent term.

**Registration hold flags** - Students may be blocked from registering for courses by “hold flags” that may be placed for various reasons, including College or departmental advising requirements, invalid admissions status, outstanding financial obligations, unreturned equipment or library materials, suspension and disciplinary action, or non-compliance with the North Carolina Immunization Law.

**Required courses** – Courses that a student must take in order to complete his/her degree. In many cases, these courses must be passed with a grade of C or above.

**Research paper** – A formal written report that includes research findings and a student's own ideas.

**ROTC** – Reserve Officers Training Corps program; a scholarship program wherein the military covers the cost of tuition, fees, and textbooks, and also provides a

monthly allowance. Scholarship recipients participate in summer training while in college and fulfill a military service commitment after college.

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## -S-

**SAT – Scholastic Assessment Test I: Reasoning (SAT Reasoning Test)** is a standardized test for college admissions that measures a student's aptitude in math, critical reading, and writing. Many colleges and universities, including UNC Charlotte, require students to take this test and submit their test scores when they apply for admission. UNC Charlotte also accepts the ACT, but the SAT is preferred. Most students take the SAT or the ACT during their junior or senior year of high school.

**Schedule of classes** – A list of available courses for a specific period of study (i.e., Fall semester), including course numbers, hours, locations, and other pertinent information.

**Scholarship** – A sum of money given to a student for the purposes of paying at least part of the cost of college. Scholarships can be awarded to students based on academic achievements, financial need, or on many other factors. Scholarships, like grants, do not have to be repaid.

**School** – *See Department/School.*

**Section** – One of several classes of the same course. At UNC Charlotte, a three-digit code is used to identify each section of each course offered. For instance, a course called Architecture Topical Studio may have section 001 – Cycloramic Models and section 002 – Building Envelopes.

**Self-directed learning** – A process in which students take the initiative to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate learning outcomes. The instructor is available as a guide.

**Semester or Term** – A period of study of approximately 15 weeks, usually half of the academic year (i.e., Fall and Spring semesters). The Fall semester begins in August and the Spring semester begins in January at UNC Charlotte. There are Summer terms as well: one ten-week and two five-week terms.

**Semester hour** – *See Credit hour.*

**Semester Warning** – The result of unsatisfactory work during the course of a semester; a warning that the student should improve their performance.

**Seminar** – Most commonly offered as upper-level and graduate courses, these are small classes of approximately 15 students each, designed to facilitate intensive study of specific subject areas.

**Service Learning (SL)** – Any course with an SL designation must include the scholarly exploration of the concepts of citizenship, public or community service, social issues, or social justice, and provide learning via direct, hands-on experience outside of the classroom.

**SOAR – Student Orientation, Advising, and Registration.** It is the official UNC Charlotte orientation for new undergraduate students.

**Sorority** – A social organization for female students, with specific objectives, rules and regulations.

**Study abroad** – Visiting other countries for educational purposes, including earning academic credit, learning about different cultures, and developing a deeper understanding of the global marketplace.

**Subjective test** – An examination in which the answers are in the form of narrative sentences, or long or short essays, often expressing opinions (thus subjective) rather than reporting facts (objective).

**Summa Cum Laude** – The highest honorary recognition of the success of a graduating student. Translates to “With Highest Honor.” For UNC Charlotte, it requires a cumulative GPA of 4.0.

**Supplemental Instruction** – Additional assistance for students in historically difficult courses, including accounting, biology, chemistry, communication studies, engineering, mathematics, and physics.

**Surveys** – A method for collecting information to improve the experience for future students. Current students are often asked to complete questionnaires or participate in focus groups to provide feedback on the quality of services and impact of educational programs.

**Syllabus** – A course outline typically provided on the first day of class by the instructor that describes course requirements, topics to be covered, required reading, grading criteria, faculty expectations, deadlines, exam dates, class attendance requirements, and other relevant course information.

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## -T-

**Take-home examination** – An examination that may be completed at home. Since students may use

additional resources, these exams are usually more difficult than in-class exams.

**Term or Semester** – A period of study of approximately 16 weeks, usually half of the academic year (i.e., Fall and Spring semesters). The Fall semester begins in August and the Spring semester begins in January at UNC Charlotte. There are Summer terms as well: one ten-week and two five-week terms.

**Term paper** – A written original work discussing a topic in detail, usually several typed pages in length. Often due at the end of a semester.

**Test** – An examination, or any other procedure that measures the academic abilities of students.

**Thesis** - A long essay or dissertation involving personal research, written by a candidate for a graduate degree.

**Track** – A separate route leading to the same degree but with different requirements. Also called a *concentration*. For example, a student may earn a B.A. in Communication Studies, but have achieved it through a Health Communication, Mass Media, or Public Relations track.

**Transcript** – A list of all the courses a student has taken at UNC Charlotte with the grades that the student earned in each course. A transcript is an exact and complete record of a student's academic history. The University requires a high school transcript when a student applies for admission.

**Transferability** – The extent to which a course taken from one college or university may be accepted by another. Full or partial transfer of the credit may be available, dependent on factors such as whether the receiving college or university offers an equivalent or similar course at comparable levels of academic expectation for learning. Academic advisors have information about whether and how specific courses will transfer to their institutions and degree programs.

**Transfer student** – A student who has earned credit in one college or university, and then transfers to another.

**Transient study** – When credit for courses taken by current UNC Charlotte students at other accredited institutions are transferred to UNC Charlotte, subject to approval. For details, see the Degree Requirements and Academic Regulations section of this *Catalog*.

**True/False examination** – An examination in which questions are answered by marking "True" or "False."

**Tuition** – The amount of money that colleges charge for coursework and other instruction. Tuition can vary widely between educational institutions, and does not cover fees, cost of books, and other materials.

**Tuition waiver** – A form of financial assistance in which the university may charge little or no tuition.

**Tutoring** – A method of providing help to students through additional instruction outside of class. Advanced students work with individuals or small groups to increase their understanding of the material.

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-U-

**Undeclared** – A student who has not yet declared a major field of study; sometimes referred to as *undecided*.

**Undergraduate studies** – A two or four-year program in a college or a university, following high school graduation, which leads to an associate or bachelor's degree, respectively.

**Unsatisfactory grade reports** – notifications sent to students in the middle of each semester for courses in which the student is performing below average and a grade has been reported.

**Upper-division course** – A course that is intended for junior and senior level students (typically 3000 and 4000 course numbers) that contains advanced, and typically more specific, topic content.

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-V-

**Visiting faculty** – Faculty members who come to the university from another institution for an appointment of a year or less, sometimes to fill a temporary vacancy.

**Visual learner** – Learns through seeing; these students prefer to see the instructor's body language and facial expression to fully understand the content of a lesson. They tend to prefer sitting at the front of the classroom to avoid visual obstructions (e.g., people's heads). They may think in pictures and learn best from visual displays including – diagrams, illustrated text books, overhead transparencies, videos, flipcharts, and hand-outs. During a lecture or classroom discussion, visual learners often prefer to take detailed notes to absorb the information.

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-W-

**Withdrawal** – The procedure in which a student officially removes himself/herself from taking a course,

or removes himself/herself from all courses. Tuition may or may not be refunded, depending on the date of withdrawal.

**W-limit hours** – The maximum number of credit hours (currently 16) for which undergraduate students are allowed to receive a grade of W over their academic career at UNC Charlotte.

**Work-study program** – A program that allows students to work part-time during the school year as part of their financial aid package. The jobs are usually on campus and the money earned is used to pay tuition or other college expenses.

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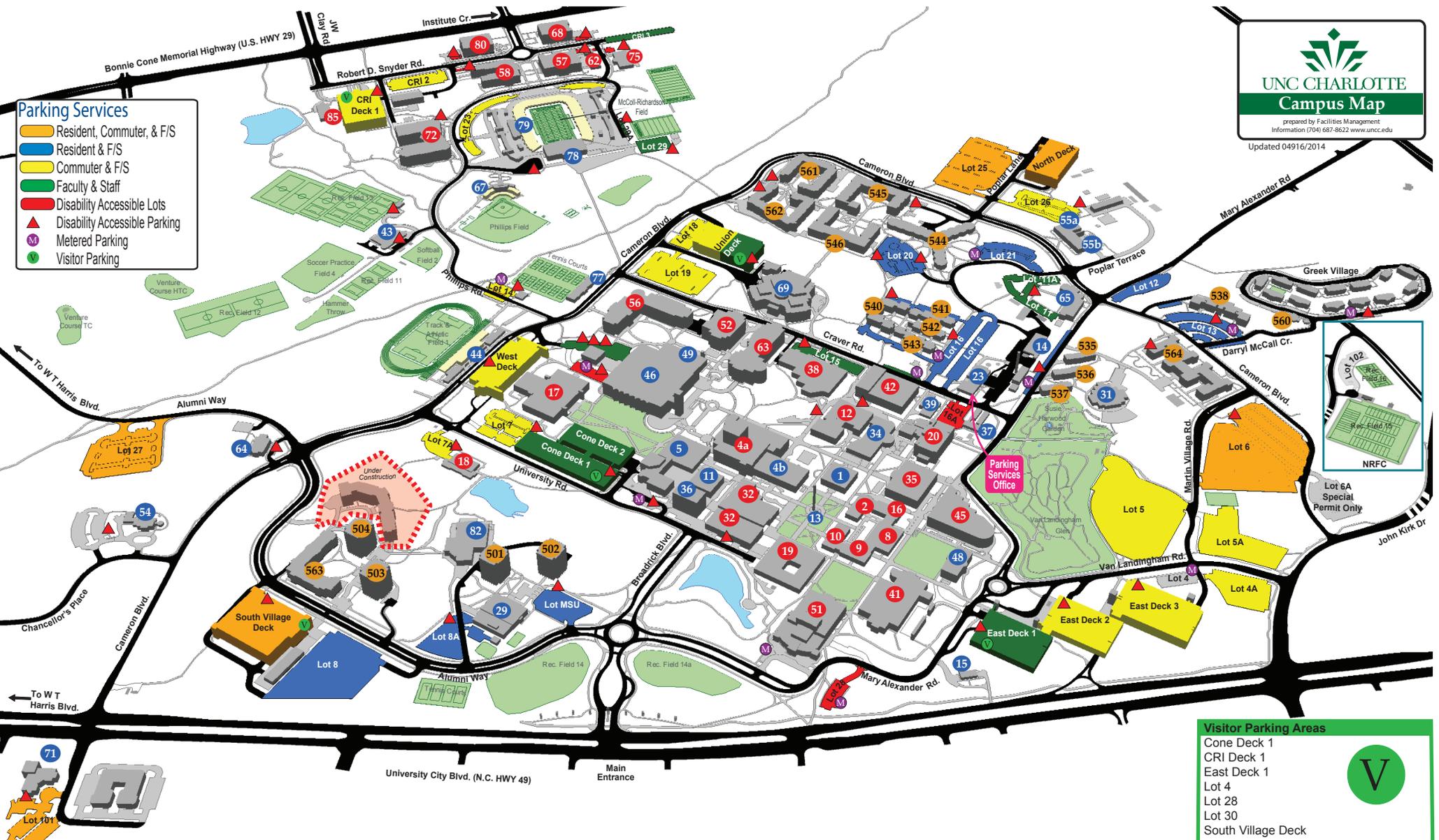
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### Parking Services

-  Resident, Commuter, & F/S
-  Resident & F/S
-  Commuter & F/S
-  Faculty & Staff
-  Disability Accessible Lots
-  Disability Accessible Parking
-  Metered Parking
-  Visitor Parking



### Visitor Parking Areas

- Cone Deck 1
- CRI Deck 1
- East Deck 1
- Lot 4
- Lot 28
- Lot 30
- South Village Deck
- Union Deck



Academic Buildings	
4a Atkins	62 Kulwicky Laboratory
16 Barnard	02 Macy
17 Belk Gym	20 McEniry
68 Bioinformatics	18 Memorial Hall
38 Burson	75 Motorsports Research
42 Cameron Hall	80 PORTAL
52 College of Education	51 Robinson Hall
32 Colvard	19 Rowe
08 Denny	12 Smith
57 Duke Centennial Hall	41 Storrs
72 EPIC	10 Winningham
45 Fretwell	56 Woodward Hall
35 Friday	
09 Garinger	
58 Grigg Hall	
63 Health & Human Services	
85 High School	

Services - Places of Interest			
<b>General</b>	<b>Administration</b>	<b>Places of Interest</b>	
39 Aux. Services Building	48 Cato Hall	13 Belk Tower	
46 Barnhardt	- Admissions	54 Bissell House	
- Student Activity Center	01 Kennedy	- Chancellor's Residence	
- Halton Arena	71 King	- Foundation	
05 Cone University Center	- Registrar	77 Halton Wagner Complex	
4b Counseling Center	36 Reese	64 Harris Alumni Center	
55a Facilities Management	- Student Accounts	44 Irwin Belk Track & Field	
23 Facilities Operations		15 Niner House	
Parking Services	<b>Dining Services</b>	14 Receiving/Stores	
67 Hayes Stadium	31 Cafeteria Activities Bld.	79 Richardson Stadium	
37 McMillan Greenhouse	34 Prospector	78 Rose Football Center	
49 Miltimore-Wallis Center	29 Residence Dining Hall	Susie Hardwood Garden	
55b Police	82 South Village Crossing	Van Landingham Glen	
65 Student Health Center	69 Student Union	43 Wells Fargo Fieldhouse	

Campus Housing	
562 Belk Hall	537 Sycamore Hall
535 Ceder Hall	545 Wallis Hall
543 Elm Hall	544 Witherspoon Hall
560 Greek Village	
538 Hawthorn Hall	
536 Hickory Hall	
504 Holshouser Hall	
563 Hunt Hall	
546 Lynch Hall	
542 Maple Hall	
564 Martin Hall	
561 Miltimore Hall	
501 Moore Hall	
540 Oak Hall	
541 Pine Hall	
502 Sanford Hall	
503 Scott Hall	

Parking Areas		
<b>Resident, Commuter &amp; F/S</b>	<b>Resident &amp; F/S</b>	<b>Commuter &amp; F/S</b>
- Lot 6	- Lot 8A	- Lot 4A
- Lot 25	- Lot 8	- Lot 5 & 5A
- Lot 27	- Lot 12	- Lot 7
- Lot 101	- Lot 13	- Lot 7A
- North Deck	- Lot 16*	- Lot 14
- S. Village Deck	- Lot 20	- Lot 18 & 19
	- Lot 21	- Lot 23
	- Lot MSU	- Lot 26
<b>Faculty &amp; Staff</b>		- CRI 2
- Lot 11 & 11A		- East Deck 2
- Lot 15		- East Deck 3
- Lot 29 & 29A		- Union Deck
- CRI 3		- West Deck
- Cone Deck 1 & 2		- CRI Deck 1
- East Deck 1		
- Union Deck		

*\*Note: No F/S in this lot except in marked spaces*