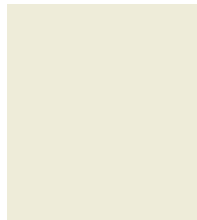
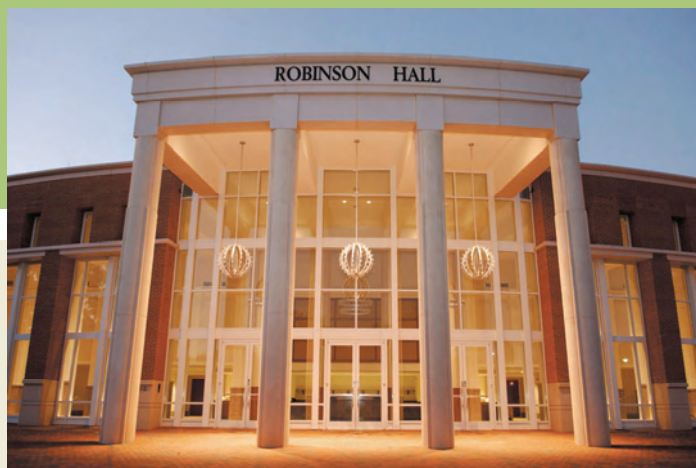




UNC CHARLOTTE



2005 - 2007 Undergraduate Catalog



Correspondence Directory

If, after reading this *Catalog*, you have further questions or specific inquiries about the programs of, or admission to, The University of North Carolina at Charlotte, please look below to find the proper office to contact. Address correspondence to any of the offices in care of:

The University of North Carolina at Charlotte
9201 University City Boulevard
Charlotte, NC 28223-0001

INFORMATION

Campus Operator/Switchboard	704-687-2000
Academic Affairs	704-687-2224
Admissions	
Undergraduate	704-687-2213
Graduate	704-687-3368
International	704-687-3366
Bookstore	704-687-4584
College of	
Architecture	704-687-4841
Arts and Sciences	704-687-4303
Business	704-687-2165
Education	704-687-4707
Engineering	704-687-2301
Health and Human Services	704-687-4690
Honors College	704-687-4824
Information Technology	704-687-3516 or 4770
Cone University Center	704-687-2267
Continuing Education and Extension	704-687-2424
Counseling Center	704-687-2105
Dean of Students	704-687-2375
Dining Services	704-687-2020
Financial Aid	704-687-2461
Health Services	704-687-4617
International Programs	704-687-2442
J. Murrey Atkins Library	
Circulation	704-687-2392
Reference	704-687-2241
Parking	704-687-4285
Records/Registration	704-687-3487
Residence Life	704-687-2585
Student Accounts	704-687-2215
Student Affairs	704-687-2206
Summer Programs	704-687-2099
Transcripts	704-687-1462

EMERGENCY NUMBERS

Campus Police -- Emergency	704-687-2200 or 911
Director of Public Safety and Non-Emergency Calls	704-687-2282
Health Services (radio contact w/police) ..	704-687-4617
Inclement Weather Hotline	704-687-2877

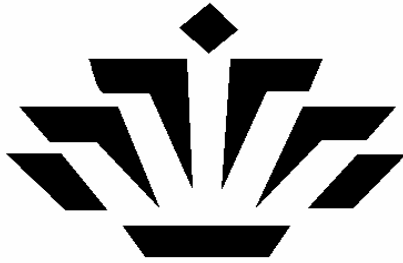
About This Catalog...

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.

Graduation Rate Disclosure Statement. Our data shows that 51% of the full-time new freshmen who entered UNC Charlotte in Fall 1998 have received a baccalaureate from this institution or another UNC institution as of Fall 2004. In addition, another 7% were enrolled at this or another UNC institution in pursuit of their baccalaureate degree as of Fall 2004. This information is provided pursuant to requirements of the Student-Right-to-Know and Campus Security Act of 1990.

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The University of
North Carolina at Charlotte

Undergraduate Catalog
2005 - 2007

Vol. XXX

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www.provost.uncc.edu/academic_affairs/catalogs/2005-2007_Catalog/index.htm

The University of North Carolina at Charlotte is open to people of all races, 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. Moreover, UNC Charlotte actively seeks to promote integration by recruiting and enrolling a larger number of ethnically diverse students.

ACADEMIC CALENDAR 2005-2007

Dates pertaining to changes in enrollment and refunds are included in the calendars that appear in the *Schedule of Classes* each semester and in the summer sessions bulletins.

	2005-06	2006-07
FALL SEMESTER		
Academic Year Begins	Aug 15	Aug 15
First Class Day	Aug 22	Aug 21
No Saturday Classes	Sept 3	Sept 2
Labor Day-University closed	Sept 5	Sept 4
Student Recess - no classes	Oct 10-11	Oct 9-10
Thanksgiving - no classes	Nov 23-26	Nov 22-25
University closed	Nov 24-25	Nov 23-24
Last Class Day	Dec 7	Dec 6
Reading Day	Dec 8	Dec 7
Final Examinations*	Dec 9-10, 12-16	Dec 8-9, 11-15
Commencement	Dec 17	Dec 16
SPRING SEMESTER		
First Class Day	Jan 9	Jan 8
M.L. King Day - University closed	Jan 16	Jan 15
Student Recess - no classes	Mar 6-11	Mar 5-10
Spring Weekend - no classes	Apr 14-15	Apr 6-7
Saturday Classes Final Exams	Apr 29	Apr 28
Last Class Day	May 2	May 1
Reading Day	May 3	May 2
Final Examinations*	May 4-5, 8-11	May 3-4, 7-10
Ceremony Day	May 12	May 11
Commencement	May 13	May 12
Academic Year Ends	May 14	May 14
FIRST SUMMER TERM		
Class Days Including Exams	May 22-June 28	May 21-June 27
Memorial Day – no classes	May 29	May 28
SECOND SUMMER TERM		
Class Days Including Exams	July 5-Aug 10	July 5-Aug 10
Fourth of July - University closed	July 4	July 4
EXTENDED SUMMER TERM		
Class Days Including Exams	May 22-Aug 10	May 21-Aug 10
Fourth of July - University closed	July 4	July 4

* Common Examinations held on the first day of exams.

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THE UNIVERSITY

HISTORY OF THE UNIVERSITY OF NORTH CAROLINA

In North Carolina, all public educational institutions that grant baccalaureate degrees are part of the University of North Carolina. The University of North Carolina at Charlotte is one of the 16 constituent institutions of the multi-campus state university.

The University of North Carolina, chartered by the N.C. General Assembly in 1789, 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.

In 1877, the N.C. General Assembly began sponsoring additional institutions of higher education, diverse in origin and purpose. Five were historically black institutions, and another was founded to educate American Indians. Several were created to prepare teachers for the public schools. Others had a technological emphasis. One is a training school for performing artists.

In 1931, the N.C. 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, the General Assembly passed legislation 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, Pembroke State University (now the University of North Carolina at Pembroke), Western Carolina University, and Winston-Salem State University. This action created the current 16-campus University. (In 1985, the North Carolina School of Science and Mathematics, a residential high school for gifted students, was declared an affiliated school of the University.)

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." It elects the president, who administers the University. 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.

Each of the 16 constituent institutions is headed by a chancellor, who is chosen by the Board of Governors on the president's nomination and is responsible to the president. Each institution 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 NC School of the Arts has two additional ex-officio members). Each board of trustees holds extensive powers over academic and other operations of its institution on delegation from the Board of Governors.

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

UNC Charlotte aspires to be North Carolina's most energetic and responsive university, offering unparalleled educational opportunities for nearly 25,000 students seeking the highest quality undergraduate, graduate, and continuing personal or professional enrichment in the liberal arts and sciences and selected professions. The goal of UNC Charlotte is to be a publicly supported Doctoral/Research University – Extensive in North Carolina early in the 21st Century. UNC Charlotte will be known especially for the individual commitment of each member of its collegial and diverse faculty and staff to extending educational opportunity and ensuring student learning and success, both at the graduate and undergraduate levels; its nationally and internationally recognized capacity for research and scholarship; and its willingness to join its resources in collaboration with those of other institutions to address the major educational, economic, social, and cultural needs of the greater Charlotte region. UNC Charlotte has a special responsibility to build the intellectual capital of this region.

The University offers programs in architecture, business, education, engineering, health professions, the humanities, information technology, physical and biological sciences, and social and behavioral sciences. In order to meet the growing need for higher education in the Charlotte region and in the State, the University continues to expand degree programs and continuing education non-degree offerings.

The University is committed to excellence through informed and effective teaching in all academic programs and emphasizes undergraduate instruction as the foundation of life-long learning and advanced formal education. The students selected for admission have demonstrated a willingness to learn, a capacity to benefit from a broad array of intellectual resources, and the potential to participate in the opportunities offered by the changing global society. University programs are open to all qualified students without regard to race, color, national origin, gender, age, religious belief, sexual orientation, or

disability. Participation by students from other states and nations is welcomed.

The size and distinction of our research programs reflects the nationally competitive faculty. Recruited from across the world, they engage in both basic and applied research. Scholarly inquiry informs graduate and undergraduate instruction, and takes advantage of the University's location in a diverse and dynamic metropolitan region.

The campus environment encourages the active involvement of students in their personal and intellectual development, including opportunities to learn leadership skills. The policies and practices of the University are designed to graduate students with the breadth and depth of knowledge and the intellectual and professional skills that prepare them for a productive life in an ever-changing world. The University experience will:

- Foster a realistic understanding of their personal potentials;
- Promote a commitment to responsible citizenship and a capacity to lead;
- Encourage strong ties and commitment to the University and its mission and vision;
- Develop fundamental skills of inquiry in writing, mathematical and logical reasoning, information literacy and technology, and the sciences
- Develop an understanding and appreciation of the themes of liberal education for private and public life in the areas of arts and society, the western tradition, global understanding, and ethical issues and cultural critique;
- Develop oral and written communication skills;
- Develop the ability to engage in reasoned debate about pressing moral concerns and to resolve them in an ethically sound and responsible manner.

INSTITUTIONAL MISSION STATEMENT

UNC Charlotte is the only Doctoral/Research University – Intensive in the Charlotte region, fully engaged in the discovery, dissemination, synthesis, and application of knowledge. It provides for the educational, economic, social, and cultural advancement of the people of North Carolina through on- and off-campus programs, continuing personal and professional education opportunities, research, and collaborative relationships with private, public, and nonprofit institutions. UNC Charlotte has a special responsibility to build the intellectual capital of this area. As such it serves the research and doctoral education needs of the greater Charlotte metropolitan region.

The primary commitment of UNC Charlotte is to extend educational opportunities and to ensure success for qualified students of diverse backgrounds through informed and effective teaching in the liberal arts and sciences and in selected professional programs offered through Colleges of Architecture, Arts and Sciences, Business Administration, Education, Engineering, Information Technology, and Health and Human Services, and through programs and services designed to support students' intellectual and personal development. The University offers an extensive array of baccalaureate and master's programs and a number of doctoral programs.

With a broad institutional commitment to liberal education as the foundation for constructive citizenship, professional practice, and lifelong learning, UNC Charlotte is prepared to focus interdisciplinary resources to address seven broad areas of concern to the Charlotte region: 1) Liberal Education; 2) Business and Finance; 3) Urban and Regional Development; 4) Children, Families, and Schools; 5) Health Care and Health Policy; 6) International Understanding and Involvement; and 7) Applied Sciences and Technologies.

ACADEMIC STRUCTURE

UNC Charlotte is organized into four administrative divisions: Academic Affairs, Business Affairs, Development and University Relations, and Student Affairs. The Division of Academic Affairs includes Enrollment Management; Graduate Programs; Library; Information and Technology Services; Metropolitan Studies and Extended Academic Programs; International Programs; Research; the Charlotte Research Institute and seven colleges, the Colleges of Architecture, Arts and Sciences, Business Administration, Education, Engineering, Information Technology, and Health and Human Services. The colleges offer 83 undergraduate and 58 master's degree options and sixth-year Certificates of Advanced Study, and 12 doctoral programs. Many of the departments throughout the University are involved in teacher education. The College of Education, advised by the University Teacher Education Committee, is responsible for these programs.

EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION

The 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, gender (except when gender is a bona fide occupational qualification), sexual orientation, age, national origin, physical or mental disability (except when making reasonable accommodations for physical or mental disabilities that would impose undue hardship on the conduct of University business), or status as a disabled or Vietnam Era Veteran (except when making reasonable accommodations for physical or mental limitations of a person with such veteran status that would impose an undue hardship on the University). 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

6 The University

of the selecting official. The University has established reporting and monitoring systems to ensure adherence to this policy of nondiscrimination.

Affirmative Action

Our 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, disabled veterans and veterans of the Vietnam Era, 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.

Discriminatory Personal Conduct. The University seeks to promote a fair, humane, and respectful environment for its faculty, staff, and students. To that end, University policy explicitly prohibits sexual harassment, racial harassment, and all other personal conduct which inappropriately asserts that sex, race, ethnicity, sexual orientation, disability, or ancestry are relevant to consideration of individual worth or individual performance. The same policies provide procedures for the informal or formal resolution of instances where such behavior is suspected or alleged. The policies have received wide distribution and are available for inspection in all administrative offices on campus.

ACCREDITATION

UNC Charlotte is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; telephone number 404-679-4501) to award baccalaureate, master's, intermediate, and doctoral degrees.

The Bachelor of Architecture and Master of Architecture "first professional degree" programs are accredited by the National Architectural Accrediting Board (NAAB). The Department of Chemistry is on the approval list of the American Chemical Society. The Master of Public Administration program is accredited by the National Association of Schools of Public Affairs and Administration (NASPAA). The Bachelor of Social Work and Master of Social Work programs are accredited by the Council on Social Work Education (CSWE). The programs in business and accounting are accredited by AACSB International - The Association to Advance Collegiate Schools of Business. 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). The School Counseling and Agency (Community) Counseling programs in Counselor Education are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The civil, computer, electrical, and mechanical engineering programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology; and the civil, electrical, and mechanical engineering technology programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone: (410) 347-7700. The Nursing programs are accredited by the Commission on Collegiate Nursing Education (CCNE) and 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 Educational Programs (CANAEP). The Bachelor of Athletic Training program is accredited by the Joint Review Committee on Educational Programs in Athletic Training (JRCAT) and Commission of Allied Health Education Programs (CAAHEP) through October 2008. Both the Bachelor of Science in Health Fitness program and the Master of Science in Clinical Exercise Physiology are in candidacy for accreditation by the Committee on Accreditation for the Exercise Sciences (CoAES) and Commission of Allied Health Education Programs (CAAHEP). The Master of Health Administration Program is in candidacy for accreditation by the Commission on Accreditation of Healthcare Management Education (CAHME).

The University is a member of the Council of Graduate Schools, the Conference of Southern Graduate Schools, and The North Carolina Association of Colleges and Universities.

STUDENT LIFE

ACTIVITIES

Students at UNC Charlotte are encouraged to participate in extracurricular activities. 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.

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 organizations associated with the Student Government Association, Campus Activities Board, and Student Media requires students to be in good standing with the University, both academically and in accordance with *The Code of Student Responsibility* (located at the back of this Catalog).

Athletics. The Charlotte 49ers Department of Athletics provides competition in 16 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 eight sports: baseball, basketball, cross-country, golf, soccer, tennis, indoor track and field, and outdoor track and field. Female student-athletes also compete in eight sports: basketball, cross-country, soccer, softball, tennis, volleyball, indoor track and field, and outdoor track and field.

The Charlotte 49ers recently joined the Atlantic 10 Conference with play in the league beginning in 2005-06. The Atlantic 10 sponsors championships in each of the 49ers' 16 sports. The Atlantic 10 is made up of 14 schools: Charlotte, University of Dayton, Duquesne University, Fordham University, George Washington University, La Salle University, University of Massachusetts, University of Rhode Island, University of Richmond, St. Bonaventure University, Saint Joseph's University, Saint Louis University, Temple University and Xavier University. Atlantic 10 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.

Each of the 49ers teams, except golf and cross-country, competes on campus in home competition. The basketball and volleyball teams compete in Halton Arena, the soccer and track and field programs compete at the Irwin Belk Center, while the baseball, softball and tennis teams compete at the D.L. Phillips Athletic Complex.

IMPORTANT: UNC Charlotte students have free admission to all regular-season home athletic contests with proper University identification.

DEAN OF STUDENTS OFFICE

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: student government, fraternities and sororities, minority student support services, new student orientation, off-campus student services, women's programs, judicial programs and volunteer services.

The Dean of Students Office welcomes all students. The staff of student development professionals 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 social misconduct charges against individuals and student organizations.

Each of the above services provides excellent opportunities for students to incorporate classroom knowledge into practical situations. Students often find themselves learning new skills and abilities that will help them become more productive and more responsible citizens. The Dean of Students Office is located in 217 King Building. For information, call 704-687-2375.

Greek Life at UNC Charlotte consists of 23 fraternities and sororities and involves many of our campus community. Achieving excellence is the primary focus of a college education, and since 1776, Greek-letter organizations have been an integral part of that mission at colleges and universities across the country. Founded upon the principles of scholarship, leadership, community service and the formation of lifelong friendships, fraternities and sororities today uphold these fundamental values in their pursuit of collegiate excellence, enabling all members to achieve their personal best. 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.

The Student Advising for Freshman Excellence (SAFE) program is one of the University's most successful retention efforts. SAFE connects new students with an upper-class mentor who acts as a behavior and academic role model during the freshman year. Together with academic and student development programming, SAFE addresses student's needs in a holistic manner. Research shows that SAFE's efforts go a long way toward easing the transition from high school to

8 Student Life

college. SAFE is geared to minority students but is open to any student interested in success at UNC Charlotte.

Women's Programs offered in the Dean of Students Office include the Women of the Year Awards, Women's Leadership Conference and the Take Back the Night Rally to protest violence against women and children. Women's Programs also works closely with the Women's Studies Program to provide services and awareness of women's issues.

Off-Campus Student Services in the Dean of Students Office 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.

Volunteer Services helps students find community service opportunities through a clearinghouse containing listings of local non-profit agencies. A wide diversity of service activities is available, and the Volunteer Services staff can help students find an opportunity that matches their interests and skills. Volunteer Services also has a number of issue-based programs that focus on topics like hunger, education, homelessness, literacy, and mentoring in which all UNC Charlotte students, faculty, and staff may participate. Volunteer Services also sponsors special events such as Relay for Life, Alternative Spring Break, and 49er Plunge.

New Student Orientation Programs help freshmen and transfer students learn more about UNC Charlotte. SOAR and WOW! are two orientation and transition programs offered to new students.

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.

WOW! (Week Of Welcome) is a weeklong event welcoming both new and returning students to campus. This program is a University-wide effort to 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 a block party, movies, prizes, cookouts, and other fun events.

Intramural & Recreational Services develops and conducts programs that provide opportunities for University students and faculty/staff members to participate in recreational activities. Four major program areas offer a variety of structures in which members of the University community may pursue recreational interests. *Intramural tournaments and events* are scheduled throughout the year for individual, dual, and team participation. The tournaments and events 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 thirty clubs, ranging from martial arts to lacrosse to paintball, are active each semester. *Fitness and Wellness* opportunities include group fitness, mind/body classes and personal training. In addition to structured sports programs, the division promotes the

concept of informal recreational use of athletic facilities through the *Open Recreation Program*.

The Belk Gymnasium features basketball, volleyball and badminton courts, an indoor swimming pool, racquetball courts, a weight room, and lockers for students, faculty, and staff. It also houses classrooms and an auditorium for audiovisual presentations.

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 9,000 seat arena is a first-class setting for athletic events, as well as for conferences, lectures, entertainment, and other university functions. Retractable seating folds back to reveal four recreational courts that may be used for recreational play, sports camps, or additional space for job fairs, etc. Other recreational opportunities are available daily via the state of the art weight room, aerobics studio, indoor track, and the indoor climbing wall. While physical fitness opportunities can be enjoyed in these areas, two other areas of the building emphasize relaxation and socializing. The first floor of the SAC is home to a spacious food court offering three fast food restaurants and a fourth which features a Japanese style menu. Overlooking the food court is the 7,000 square foot game room located on the second floor. There, one will find billiards, table tennis, foosball, air hockey, game tables and a video arcade. The third and top floor of the SAC is comprised of a large and gracious hospitality area that can be sub-divided into five separate meeting salons. The campus catering kitchen is located adjoins the hospitality area.

OFFICE OF STUDENT ACTIVITIES

The Office of Student Activities (OSA) is a department within the Division of Student Affairs, which works to enhance the growth and development of students directly and indirectly by planning, advising, supporting and implementing a variety of programs, products and services. OSA includes Campus Activities Board, Student Media, Center for Leadership Development, Multicultural Resource Center, Venture, and Student Organizations. OSA sponsors several special programs during the year, including A Cone-A Fair, annual poster sales, Bonnie E. Cone Center Art Gallery exhibitions, and special one time events such as the recent trip to the Clay Aiken/Kelly Clarkson concert in Charlotte. Not sure where or how to get active? Come by the Office of Student Activities, located next to After Hours and Main Street Market in Cone University Center and talk with us! Information on each of the units of OSA follows. For additional information, please call (704) 687-2521 or visit online at <http://studentactivities.uncc.edu>.

Campus Activities Board is the largest student programming organization on campus and is responsible for planning diverse, quality events for the university community. CAB offers over 100 programs a year and works to enhance and unify the university community by planning social, cultural, educational and recreational events that complement the university's academic mission. Founded early in the history of UNC Charlotte, CAB maintains a vital role in fostering 49er spirit and traditions through popular programs such as Week of Welcome, Week of Madness, Homecoming and more. Located in Cone Center, 3rd Floor. For more information, visit online at www.uncc.edu/cab or call (704) 687-2450. Opportunities for student involvement include the following committees:

Live Entertainment – brings entertainment ranging from comedy, live music, variety acts and other entertainment trends. On at least one Friday night each month, this committee brings a wide variety of diverse acts to campus.

Special Programs – Stand up local comedy, open mic, poetry slams, improv, dance...you name it and this committee works to bring it to the Thursday night series, presented every other week.

Talks and Topics – Sometimes serious, sometimes fun, or a little of both! In an effort to complement the academic mission and offer a marketplace of various opinions and ideas, this committee works to provide forums, lectures, and debates on a variety of issues and topics.

Cone Connections – Anything from campus brown bag forums, to live performances – this committee works to bring life into the Cone University Center during the daytime and over the lunch hour. Presented on Wednesdays. The main focus includes lunch time series in After Hours, a popular eating place in Cone University Center.

Feature Films – You can see it all here! Every other week all year, this committee merges a combination of blockbusters, classics, independents, visual media and new “sneak peak” screenings on Sunday evenings and Monday lunchtime. This film series strives to create an educational as well as entertainment value appeal for a variety of students.

Spirit and Traditions – Enables you to be part of living the 49er spirit and traditions by planning annual events such as Homecoming, Week of Madness and Week of Welcome. This committee works collaboratively with other campus organizations, faculty, and staff to produce university wide events.

STUDENT MEDIA PRODUCTIONS

The Student Media Board is the governing body for Student Media. It is comprised of students and administrative staff members, as well as representatives of the various student media.

The University Times is the campus newspaper, published every Tuesday and Thursday, and 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 with the University's news by calling (704) 687-2663 and ordering a subscription to The University Times.

NinerOnline.com is the university community's home in cyberspace. UNCC news, sports, and feature stories are posted several times each week. Students can sign-up to have the headlines emailed to them throughout the week or anytime breaking news is happening. Students gain experience with internet publishing and writing by working with NinerOnline. Visit the site at <http://www.nineronline.com>.

Media Marketing is the sales and promotions branch of Student Media. The 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 is the nationally recognized literary 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.

Internships are available in Student 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 the student media, contact the office at (704) 687-2663, 175 Cone Center, or visit online at <http://media.uncc.edu>.

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 more effective leadership. The goal is to provide a comprehensive and diverse program of leadership development activities for current student leaders and potential leaders.

The program consists of both group and self-paced leadership components, retreats and conferences, as well as academic courses. Individual and group consultation is also available.

LeaderShape Institute—Leadership program for established leaders; focus is on vision and leading with integrity

Leadership Resource Area—Information on a variety of leadership topics for individuals and organizations

Leadership Fellows—Fall semester group leadership experience for upper classmen (applications available Spring semester)

Emerging Leaders—Group leadership experience for freshmen (applications available Fall semester)

Leadership, Communication, and Group Dynamics—A 3-hour leadership theory course in communication studies

Individual and Group Consultation—Assistance with applications, interviewing, leadership issues and programmatic needs

Conferences—Co-sponsorship of leadership conferences for Greeks, women, and members of multicultural organizations

Leadership, Service and Ethics—A 3-hour course in communication studies for students interested in developing a leadership framework and obtaining academic credit

PILOT (Programs in Leadership and Organizational Training)—individualized leadership program that provides an opportunity for leadership certification in a self-paced program

LEAD Team—Students trained as presenters available to make presentations on a wide variety of leadership topics

Leadership Website—Provides information, events calendar, and leadership resources

10 Student Life

Leadership Learning Community—One-year residential program for first-year students who have an interest in developing or building leadership skills and abilities

Academic Certificate in Leadership Studies—An 18-credit hour concentration in inter-disciplinary leadership studies leading to an academic certificate awarded at graduation from the institution

Contact the Center for Leadership Development for more information at (704) 687-2703 or online at <http://leadership.unc.edu>.

MULTICULTURAL RESOURCE CENTER

The Multicultural Resource Center (MRC) offers opportunities for students, faculty and staff to learn about a diversity of issues relating to global differences while providing an environment for specific populations to meet and socialize with others. In addition, the staff support the efforts of students to establish organizations that build awareness of and celebrate diversity and building community.

The MRC provides the University community with non-mainstream diversity resources including books, newspapers, journals, videos, magazines, training materials, and games. The Center also provides a resource area, with conference room, computer stations and internet access to aid multicultural organizations without dedicated office or meeting space.

Special programs supported by the MRC include the annual International Festival, Martin Luther King, Jr. Celebration, Cultural Heritage Celebration Weeks, as well as other special events. Several multi-cultural student organizations are advised out of the MRC, including Black Student Union and Caribbean Connections.

Black Student Union (BSU) is an organization designed to raise cultural awareness and address issues facing the African-American student community. Some of its sponsored activities include the annual Halloween Carnival, the annual Step Shows, the Housekeeper's Appreciation Day, and an annual Awards Banquet. This organization also produces a student-run publication, "The Black Perspective," for the articulation of the voices of African-American students. Students interested in these types of events should contact the BSU office at (704) 687-2191. Membership is open to all students.

Martin Luther King Celebration Committee is a committee of students, faculty, and staff working together to produce a campus-wide celebration. For information, contact the Multicultural Resource Center at (704) 687-3865.

Cultural Heritage Weeks are celebrations and education of cultures represented by UNC Charlotte students. Staff support the efforts of these student organizations to educate the university community about these cultures through a variety of workshops, presentations, displays and celebrations.

The Multicultural Resource Center is located in the Cone Center, 3rd Floor. For more information, please call (704) 687-3856 or visit online at <http://mrc.unc.edu>.

VENTURE offers experiential learning, non-credit courses and workshops in outdoor settings. Activities include weekend trips in a variety of outdoor sports from backpacking to kayaking, and programs at our on-campus team development course, high ropes team challenge course, and indoor climbing wall. Venture programs are modeled on Outward Bound and are designed to facilitate individual growth through physical challenge, group interaction, and personal reflection. **VOLTAGE** (Venture Outdoor Leadership Training and Group Experience) trains student leaders to instruct Venture Programs. Venture houses a resource library to help individuals plan their own trips. Outdoor camping gear can be rented.

Venture also offers courses for academic credit through the Department of Kinesiology. Each fall, a four-credit course, Wilderness Experience, offers an adapted Outward Bound experience presenting a series of increasing challenges. A variety of one-credit outdoor activity courses also is offered. For additional details, see the descriptions for KNES courses or contact the Venture Program (704-687-2486) in the Cone University Center.

STUDENT BODY GOVERNMENT

The Student Body Government provides students an early experience in governmental affairs. Students often find their work in student government a useful background for later public service. The University encourages student participation in its affairs and has student representatives on many of the 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 life at their University. All regularly enrolled students, whether on a part- or full-time basis, are eligible to participate in student government. Student Body Government is comprised of:

The Executive Branch, made up of the president, the vice president, the four class presidents, and the cabinet, who are appointed by the president.

The Student Senate, is composed of the President Pro Tempore, residence hall representatives, and representatives from each college who are chosen by the students majoring in the college. The Vice President of the Student Body conducts all meetings and serves as liaison between the Senate and the president's office. The student body treasurer reports to the Student Senate.

The Judicial Branch is composed of panel members of the Student Court including the Student Attorney General, the Chief Student Counsel, and the Student Defense Office. Members of Student Court 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 violation of the Code.

STUDENT ORGANIZATIONS

The University has over 225 student organizations that help meet the academic, social, political, and religious needs of UNC Charlotte students. There are many benefits to joining a student organizations, including making new friends, developing new skills and abilities, working as part of a team, learning to set and achieve goals, sharing your time and talents, as well as having fun. The Office of Student Activities encourages you to enhance your education at UNC Charlotte by

becoming involved and has a staff member who works directly to support student organizations. Contact the Student Government Office at (704) 687-4606 in the Cone University Center for a listing of the clubs and organizations registered by the Student Government Association. A listing of all student clubs and organizations is available online at <http://studentorgs.uncc.edu/>.

HONORARIES

The following is a list of national/international honor societies that have chapters at UNC Charlotte to recognize achievement in the disciplines indicated. Further information on each organization is available from the Department or College offering the discipline.

- Alpha Delta Mu*, national social work honor society
Contact: Department of Social Work
- Alpha Phi Sigma*, national honor society for the criminal justice sciences
Contact: Department of Criminal Justice
- Alpha Sigma Lambda*, national honor society for non-traditional students
Contact: Office of Adult Students and Evening Services
- Beta Alpha Psi*, national accounting honor society
Contact: Department of Accounting
- Beta Beta Beta*, national biology honor society
Contact: Department of Biology
- Chi Epsilon*, national civil engineering honor society
Contact: Department of Civil Engineering
- Chi Sigma Iota*, international honor society for counselors
Contact: Department of Special Education and Child Development
- Gamma Theta Upsilon*, international geography honor society
Contact: Department of Geography and Earth Sciences
- Golden Key*, national honor society (all disciplines)
Contact: Deb Sharer
- Kappa Delta Pi*, international honor society in education
Contact: College of Education
- Lambda Pi Eta*, national communication honor society
Contact: Department of Communication Studies
- National Society of Collegiate Scholars*, national honor society for first and second-year students
Contact: Dean of Students Office
- Omicron Delta Kappa*, national leadership honorary
Contact: Vice Chancellor for Student Affairs
- Order of Omega*, national Greek honorary
Contact: Assistant Dean of Greek Life
- Phi Beta Delta*, honor society for international scholars
Contact: Office of International Programs
- Phi Kappa Phi*, national honor society (all disciplines)
Contact: Office of Academic Affairs
- Phi Sigma Tau*, international philosophy honor society
Contact: Department of Philosophy
- Pi Alpha Alpha*, national public affairs/public administration honor society (for graduate students)
Contact: The Graduate School
- Pi Sigma Alpha*, national political science honor society
Contact: Department of Political Science
- Psi Chi*, national psychology honor society
Contact: Department of Psychology
- Sigma Iota Epsilon*, national management honor society
Contact: Department of Management
- Sigma Pi Sigma*, national physics honor society
Contact: Department of Physics

- Sigma Tau Delta*, national English honor society
Contact: Department of English
- Tau Alpha Pi*, national engineering technology honor society
Contact: Department of Engineering Technology
- Tau Beta Pi*, national engineering honor society
Contact: William States Lee College of Engineering

OFFICE OF RELIGIOUS AFFAIRS (ORA)

As a tax-supported public institution, UNC Charlotte neither promotes nor recommends any religious orientation. However, the University recognizes that spiritual discernment and moral appreciation are essential to the development of the whole person and has established the Office of Religious Affairs.

The **Office of Religious Affairs** serves as a liaison for faith related matters within the University community. ORA assists in directing new and existing registered religious organizations and campus ministers (or equivalent) to University procedures and processes.

The **Inter-Religious Council (IRC)**, sponsored by the Office of Religious Affairs, is comprised of any interested persons in the University community and encourages each faith or group to conduct religious activities in its own name, according to its theological principles and practices. The goal of the IRC is to develop a cooperative and non-threatening environment of understanding, mutual respect, and meaningful interaction between all faith groups on campus. The IRC holds monthly lunch discussions on faith-related topics that are open to all interested individuals on campus. In addition, the IRC has at least one activity or event each semester that promotes camaraderie among IRC members, which will benefit the university or the larger community.

The Office of Religious Affairs is located in 117 of the King Building. Contact us at 704-687-2344 or by email at swbruce@uncc.edu. Please check the website for the most current information about the registered religious groups, upcoming religious events, and the Inter-Religious Council at www.uncc.edu/relaffairs.

STUDENT CONDUCT

Upon admittance to the University of North Carolina at Charlotte, all students are responsible for becoming familiar with the Code of Student Responsibility, Code of Student Academic Integrity, and University Policy Statements that govern students. These documents can be found in the University Regulation of Student Conduct section toward the end of this catalog and online at www.legal.uncc.edu/policies/studpol.html. Additional information on the Code of Student Academic Integrity and the Code of Student Responsibility may be found in this *Catalog* in the section entitled University Regulation of Student Conduct.

ADMISSION TO THE UNIVERSITY

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.

Admissions Process. Applications for admission are reviewed when all required credentials are received. 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 always possible to accommodate all the applicants who meet the minimum criteria, and some programs select the best qualified from those meeting the minimum requirements.

The Admissions Advisory Committee may make exceptions to the minimum criteria for applicants who are judged to have potential or talent not revealed by test scores and academic performance. 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 www.housing.uncc.edu after they receive confirmation of their acceptance in the mail. Early application guarantees early confirmation of housing and enhances the possibility of assignment, if requested, to one of the special lifestyles housing units which are available on a limited basis.

Application forms and information about undergraduate programs are 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) 687-2213
Fax: (704) 687-6483
E-mail: unccadm@email.uncc.edu
Web: www.uncc.edu/admissions

International students should contact the Office of International Admissions by telephone at (704) 687-2694, by fax at (704) 687-6340, or by email at INTNLADM@email.uncc.edu. Application forms and information are also available on the internet at: www.uncc.edu/intradmn.

WHEN TO APPLY

Applicants are advised to file their applications for admission well in advance of the schedule below which is based on the amount of time generally required to process an application and inform the applicant of the admission decision. **Early application is especially advantageous during periods of rapid enrollment growth and for programs with limits on the number of new students that can be accepted.**

Term of Entry	Application Should Be Filed By	Application Should Be Completed By
First Summer Term	May 1	May 15
Second Summer Term	June 1	June 15
Fall Semester	July 1	July 15
Spring Semester	November 15	December 1

*Deadlines for international students are earlier. Contact the Office of International Admissions for further details.

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.

THE APPLICATION

The applicant is responsible for supplying all required credentials. Nondisclosure of an applicant's complete academic history will result in rejection of the application and immediate dismissal from the University.

For Freshman Admission, the application includes:

1. A completed online *Application for Undergraduate Admission* form.
2. Application fee of \$50 (nonrefundable and nondeductible).
3. Official high school transcript showing rank in class, GPA computed on a 4.0 scale, senior courses in progress, and SAT or ACT scores. (A high school equivalency certificate or G.E.D. may be submitted in lieu of a high school diploma.)
4. Official Scholastic Assessment Test (SAT) and/or American College Testing Program (ACT) scores.
5. Additional credentials, specified below, for international applications.

For Transfer Admission, the application includes:

1. A completed online *Application for Undergraduate Admission* form.
2. Application fee of \$50 (nonrefundable and nondeductible).
3. Official high school transcript. (This may be waived for applicants who present the A.A., A.S., or A.F.A. degree.)
4. Two official transcripts from every college attended, including summer sessions.
5. Additional credentials, specified below, for international applications.

For Admission of International Applicants, the application also includes:

1. Official scores on the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB), if the applicant is from a non-English speaking country. Required is either a minimum score of 180 on the new computer based TOEFL or a minimum score of 75% on the MELAB.
2. A Statement of Financial Responsibility showing the applicant's financial resources while in the United States.

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.
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; 3 units in *mathematics*, including Algebra I, Algebra II and geometry, or a higher level mathematics course for which Algebra II is a prerequisite (4 units of mathematics are required in 2006 and beyond); 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., physical science, chemistry, physics), 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 and a fourth unit of mathematics. Seniors should select a challenging academic schedule that includes English, math, science, social studies (history), and foreign language. (Course units as defined in these requirements may include high school level courses taken and passed after graduating from high school as well as those taken while enrolled as a high school student.)
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 two official copies from any college or university attended.
6. Request official Advanced Placement (AP) test results to be sent directly to the Office of Undergraduate Admissions (Code 5105) if advanced placement course credit is to be considered for addition to the UNC Charlotte transcript.
7. 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 www.uncc.edu/admissions. Please note: the College of Architecture and the School of Nursing accept applications until January 31 for the fall semester.
8. Present verification of specific immunizations required by North Carolina state law described in the *University Regulation of Student Conduct* section of this *Catalog*. An *Immunizations Form* is available to download online at www.uncc.edu/health_svcs.

Transfer Admission Requirements. Candidates for admission as transfer students must:

1. Submit a completed application for admission.
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 24) 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.
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 www.uncc.edu/admissions. Please note: the College of Architecture and the School of Nursing accept applications until January 31 for the fall semester.
7. Present verification of specific immunizations required by North Carolina state law described in the *University Regulation of Student Conduct* section of this *Catalog*. An *Immunizations Form* is available to download online at www.uncc.edu/health_svcs.

ADDITIONAL REQUIREMENTS FOR ACCEPTANCE INTO SPECIFIED PROGRAMS

Accounting. *Freshmen* admission is competitive. *Transfers* must present a GPA of at least 2.5, as calculated by UNC Charlotte Admissions, and a minimum grade of *C* in each of the progression courses (ACCT 2121, ACCT 2122, ECON 2101, ECON 2102, INFO 2130, MATH 1120, and STAT 1220) in order to enroll in junior level accounting courses beginning with ACCT 3138. Transfer students that have not completed these progression courses may be admitted to Pre-Accounting, but must present at least a 2.5 GPA and have earned a grade of *C* in all progression courses attempted to apply for an upper-division Accounting major.

Architecture. Applications for the fall semester are accepted through January 31 each year. *Freshmen and transfers* must present algebra, trigonometry, plane and solid geometry, or the equivalent in integrated courses from high school or college. A personal interview and letter of intent are also required.

Art. Any student seeking admission to the BA or BFA degree program, with or without K-12 Art Teacher Licensure, must present an art portfolio along with an admission application to the Department of Art. These submissions are accepted on an ongoing basis. Students unable to present a portfolio at the time of admission will be listed as a pre-art major. Application forms and instructions for preparation of the portfolio are available from the Office of Undergraduate Admissions or online at www.art.uncc.edu.

Business Administration (BSBA degree programs). *Freshman* admission is competitive. *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 UNC Charlotte Admissions. Students will work with the Belk College of Business to apply for an upper-division Business Administration major.

Computer Science. *Freshman* admission is competitive. *Transfers* must present an overall GPA of at least 2.5 with no grade less than *C* in computer science courses.

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Economics. *Transfers* from other institutions must present a GPA of at least 2.5, as calculated by UNC Charlotte Admissions, and a minimum grade of C in each of the progression courses (ACCT 2121, ACCT 2122, ECON 2101, ECON 2102, INFO 2130, MATH 1120, and STAT 1220), 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) a grade of C or better in both EDUC 2100 and SPED 2100; and (3) 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 a department or to the Freshman Engineering Program. *Transfers* must present a GPA of at least 2.5 and meet the same mathematics requirements as engineering freshmen using either high school or college mathematics courses. 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. An audition is required and will be scheduled by the Music Department after it is determined that the applicant is qualified for admission to the University.

Nursing. A revised curriculum in Nursing was implemented beginning with freshmen entering the University in Fall 2003. (This may also affect students that have entered the University before Fall 2003 and are planning to apply for upper-division admission after 2003). See the School of Nursing web site for announcements and information regarding the revised curriculum. Applicants are admitted to the Nursing major at the upper-division or junior

year only. *Freshmen* who meet University requirements may be admitted to Pre-Nursing. Acceptance into 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 2.5 but have not completed all prerequisites may be admitted into Pre-Nursing; however, this does not automatically qualify the applicant for acceptance into the upper-division Nursing major. 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 must be received in the Office of Undergraduate Admissions, including all supporting documentation and transcripts, by January 31 in order to be considered for admission into the fall semester and August 31 to be considered for the spring semester.

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 2.5 but have not completed all prerequisites may be admitted into the Pre-RN/BSN program. 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 in the Office of Undergraduate Admissions by March 15 to be considered for the fall semester and by September 15 to be considered for the spring semester.

NEW STUDENT ORIENTATION/REGISTRATION

New students are encouraged to participate in one of the **Student Orientation, Advising, and Registration (SOAR)** sessions scheduled in June and at the beginning of each semester. Separate programs are offered for *Freshmen*, their parents, and for *Transfers*. Activities include academic advising, placement tests in mathematics, and foreign language proficiency tests; introduction to academic support services, student organizations, and campus life; and registration for classes. 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 and Sciences, the College of Architecture, and the College of Health and Human Services all 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 Arts & Sciences and College of Health & Human Services may demonstrate proficiency by transferring in with an AA, AS, or

AFA degree.

Although all students in the College of Arts & Sciences, College of Architecture, and College of Health & Human Services 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 German, Italian, Latin, and Spanish during SOAR and on a regular basis through the school year. Contact the Department of Languages and Culture Studies for additional information.

Mathematics Placement Procedures. *Freshmen and transfers* who have not completed all Mathematics courses required for their program of study must take a placement examination to determine the appropriate entry-level Mathematics course for them. *All students entering the College of Engineering must take this placement examination.* Contact the Department of Mathematics and Statistics for additional information.

English Placement Procedures for Non-Native Speakers of English. All undergraduate degree students who are non-native speakers of English are required to take the UNC Charlotte English 1100 Placement Test to determine whether or not they must enroll in ENGL 1100 along with ENGL 1101. The test must be taken at the beginning of their first semester at UNC Charlotte. Students who pass the English 1100 Placement Test do not have to register for ENGL 1100, but they must register for a specially designated section of ENGL 1101 for non-native speakers of English. Students who *do not* pass the Placement Test *must register for both* ENGL 1100 (which is taught as a support class for ENGL 1101) and a specially designated section of ENGL 1101 during the same semester. Contact the English Department or the Office of International Programs for additional information.

International Student Orientation. An orientation, held at the beginning of every semester, is required for non-resident (F-1 & 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 www.isso.uncc.edu for more information.

READMISSION OF FORMER STUDENTS

A student who has been suspended or has not attended UNC Charlotte for 24 consecutive months must make application for readmission to the University prior to the semester or summer term for which registration is sought. Application should be filed at the Registrar's Office in accordance with the published dates. Such students must meet the GPA and departmental progression requirements of the major in which they will return. Official transcripts from any institution attended during the student's absence from the University must be submitted prior to enrollment.

For information on readmission after suspension for academic reasons, see the *Academic Regulations* section of this *Catalog*.

Associate Degree Rule. Students who leave UNC Charlotte and subsequently earn an Associate of Arts (AA), an Associate of Science (AS), or an Associate of Fine Arts (AFA) degree may apply for admission as transfer students and transfer a maximum of 64 semester hours, including hours from UNC Charlotte or other four-year institutions *applied to the Associate degree*. Students may be readmitted one time under either this Associate Degree Rule or the Two-Year Rule but not both.

Two-Year Rule for Undergraduate Students. Any undergraduate student who has not been enrolled at UNC Charlotte for a minimum period of 24 consecutive months is eligible for *one* readmission under the "Two-Year Rule." Students may be readmitted one time under either the Associate Degree Rule or the "Two-Year Rule" but not both. The "Two-Year Rule" will be applied automatically if the student is eligible. (Students electing not to have it applied may exercise this option by filing a form with the Registrar after consulting with their advisor.) Colleges and departments which have published admission or continued enrollment standards that are more restrictive than general University requirements retain the right to admit or to deny admission to a specific program.

If a student is readmitted under the provisions of the two-year rule, then only those courses for which the student has received a grade of C or better (or H or P) can be used for academic credit. His or her GPA will be based only on the courses that return with them and the work attempted after readmission. Eligibility for continued enrollment is determined as in the case of transfer students. To qualify for graduation with honors, a 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/Additional Minor. Students who have earned a bachelor's degree from UNC Charlotte may apply for readmission into a program leading to a second major or to an additional minor. See requirements which follow.

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 Undergraduate Admissions Office. 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

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transitional support services throughout the first two years of their enrollment. Students who declare a major are advised through their major department.

ADMISSION FOR SECOND BACCALAUREATE DEGREE

Students who have earned a bachelor's degree from UNC Charlotte or another accredited institution 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 Undergraduate Admissions Office 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.

ADMISSION FOR UNDERGRADUATE CERTIFICATE PROGRAMS

At press time of the printing of this *Catalog*, the University offers the following undergraduate certificates:

- Certificate in Business Languages
- Certificate in Translating
- Certificate in Computer Programming
- Certificate in Computer Architecture
- Professional Training Certificate in Dance
- Certificate in International Public Relations

Students who wish to apply for these certificate programs should consult the Office of Undergraduate Admissions web site at www.admissions.uncc.edu. If a student has already received a bachelor's degree, they 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.*

COMPUTER SCIENCE UNDERGRADUATE CERTIFICATE PROGRAMS

In order for a student to be admitted to any of the computer science undergraduate certificate programs, 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.

OTHERS ELIGIBLE FOR ADMISSION

Escrow Program Participants. 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.

Applicants recommended for participation in the program usually have shown great ability in particular academic areas. The recommendations are normally made by the secondary school principal.

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

Senior Citizens. Residents of North Carolina who have attained the age of 65 and who meet applicable admission standards may enroll tuition-free on a space available basis. Senior citizens are obligated to pay any special fees or service charges that are assessed all students. Interested persons should contact the Office of Undergraduate Admissions.

Certain programs that are not supported by state funds follow different tuition regulations, and the tuition waiver for residents over the age of 65 does not apply to these programs. Examples of programs that set their own costs for which the senior citizen tuition waiver does not apply include Education Abroad, some non-credit courses, and other specialized programs.

Non-degree Students. Non-degree students are those who are not seeking a degree at UNC Charlotte. 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. 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 have written permission from their institutions 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.

FINANCIAL INFORMATION

STUDENT EXPENSES AND FEE PAYMENT

Charges for tuition and fees vary according to the student's status as a resident or nonresident of North Carolina. A nonresident student pays a higher rate of tuition than a legal resident.

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.

Student Expenses. Graduate students taking nine or more semester hours and undergraduate students taking 12 or more semester hours during a regular semester will be charged full tuition and fees. Students taking fewer than the nine hours for graduate study and 12 hours for undergraduate study will be charged a prorated portion of tuition and fees as specified in the fee schedules in this *Catalog*.

Costs of tuition and fees for the regular academic year for a typical full-time North Carolina undergraduate student for 2004-2005 were \$3,477 and for a typical out-of-state student, \$13,589. The costs of housing and dining for the academic year were \$4,924 to \$6,854 depending on the options chosen.

The estimated average cost of books and supplies per semester varies by area and level of study and ranges from \$400.00 to \$550.00. Beginning students in architecture and engineering should allow an additional expense of \$200.00 to \$300.00 for drawing instruments, calculator and supplies. Uniforms and supplies for nurses cost approximately \$350.00.

In addition to the above, the student should take into consideration the cost of clothing, snacks, recreation, laundry, transportation, etc., in planning his/her expenses for each semester.

Fee Payment. Tuition and fees are due and payable by the date specified on the bill. Advance registration billing and due dates of fees vary with the term. Checks and money orders should be made payable to UNC Charlotte. Visa and MasterCard are accepted. Payments by credit card may be made online through 49er Express/Self-Service. UNC Charlotte offers an installment payment option through AMS Tuition Pay. For information, please contact AMS at 1-800-635-0120 or online at www.tuitionpay.com.

Returned Check Policy. If a check is returned by the bank, a letter is sent to the maker indicating that a penalty of \$25.00 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.

RESIDENCE STATUS FOR TUITION PURPOSES

Tuition charges are based upon classification of a student as a resident or a nonresident of North Carolina for tuition purposes. UNC Charlotte shall determine whether a student is a resident or a nonresident 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 *A Manual to Assist the Public Higher Education Institutions of North Carolina in the Matter of Student Residence Classification for Tuition Purposes*. Copies of the *Manual* are available for inspection in the Library and the admitting offices.

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) months immediately prior to classification as a resident for tuition purposes. 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. Legal residence is accomplished by maintaining a bona fide domicile of indefinite duration as opposed to maintaining a mere temporary residence incident to enrollment at an institution of higher education.

Initiative and Proof of Status. A student is responsible for seeking classification as a resident for tuition purposes. A student must (1) provide all of the information UNC Charlotte requires for consideration of residence classification and (2) establish facts that justify classification as a resident for tuition purposes.

Parents' Domicile. If a dependent student has living parents(s) 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.**

If a student's parent(s) or 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.

Effect of Marriage. If husband and wife are legal residents of North Carolina and one of them has been a legal resident longer than the other, the longer duration may be claimed by either spouse in meeting the 12-month requirement for classification as a resident for tuition purposes.

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 residency acts accompanied by residency intent.

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In addition, North Carolina General Statutes provide tuition rate benefits to certain military personnel and their dependents who do not otherwise qualify for the in-state tuition rate. Members of the armed services, while stationed in and concurrently living in North Carolina, may be charged a tuition rate lower than the out-of-state tuition rate to the extent that the total of entitlements for applicable tuition costs available from the federal government, plus certain amounts calculated by reference to a North Carolina statutory formula, is a sum less than the out-of-state tuition rate for the applicable enrollment.

A dependent relative of a service member stationed in North Carolina shall be charged the in-state tuition rate while the dependent relative is living in North Carolina with the service member. Under this provision, the dependent relative must comply with any applicable requirements of the Selective Service System.

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.

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, marking the beginning of the grace period.

Minors. Minors (persons under 18 years of age) usually have the domicile and thus the legal residence of their parents. If a minor's parents live apart, a minor's domicile is presumed to be the domicile of the father. 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 with 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.

Lost but Regained Legal Residence. If a student ceases enrollment at or graduates from UNC Charlotte 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.

Change of Status. 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 nonresident for tuition purposes prior to actual enrollment. A residence status classification once assigned (and finalized pursuant to any appeal properly taken) may be changed thereafter (with corresponding change in billing rates) only at intervals corresponding with the established primary divisions of the academic year.

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.

Appeal Procedure. A newly admitted student or continuing student who has been classified as a non-resident for tuition purposes may request further consideration of that decision by the UNC Charlotte Residence Status Appeals Board (RSAB) pursuant to the "Policy and Procedures for Determining Residence Status for Tuition Purposes for Undergraduate Students." This request must be in writing to the UNC Charlotte Residency Specialist and must be submitted within ten 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 as to my residence classification for tuition purposes." It must be dated and signed and should indicate the applicant's UNC Charlotte student identification number and mailing address.

TUITION AND FEES PER SEMESTER

*Following are tuition and fees **authorized for 2004-2005**. Tuition and fees are subject to change by the appropriate authorities.*

UNDERGRADUATES		
	Resident	Non-Resident
1-5 Hrs.	\$467.15	\$1,731.15
6-8 Hrs.	\$911.50	\$3,439.50
9-11 Hrs.	\$1,472.50	\$5,264.50
12 or more Hrs.	\$1,738.50	\$6,794.50

Post-baccalaureate students who are taking **only** undergraduate courses will pay tuition and fees at the undergraduate rate. Post-baccalaureate students taking one or more graduate credit courses will pay tuition and fees at the graduate rate for **all** courses.

The following Student Activities Fees are included in the **full-time** tuition and fee amounts for 2004-2005. Fees per semester are:

Educational and Technology	\$76.00
Student Activity Facility.....	65.00
Student Activity Center Operations.....	65.50
Cone Center Facilities	14.00
Cone Center Operating.....	64.00
Student Activity.....	24.50
Physical Education Facilities Maintenance	6.50
Physical Education Facility.....	6.50
Health Center Facility.....	12.50
Health Center Services	64.00
Athletic.....	182.50
Intramural	19.00
Student Union Planning Fee.....	7.50
Student Union Facility.....	37.50
Administrative Computing	26.50
Association of Student Governments.....	0.50
Student I.D.	2.00
Total fees per full-time student, per semester	\$674.00

HOUSING PER SEMESTER

Shared Residence Hall space is **not** available to married students and/or their family members. The following **are** **2004-2005** prices and plans per semester. *Prices and plans are subject to change.*

Apartment.....	\$1,722.00 to \$2,052.00
Residence Hall -- Double Room	\$1,362.00
Residence Hall -- Single Room (if available).....	\$2,018.00
Suite	\$1,642.00 to \$2,042.00

DINING SERVICES PER SEMESTER

The following **2005-2007** prices and plans are subject to change. These options are available to freshmen living in housing areas that require meal plans:

19 meals per week with \$100.....	\$1,355.00
14 meals per week with \$200 declining balance...	\$1,355.00
12 meals per week with \$300 declining balance...	\$1,445.00
10 meals per week with \$400 declining balance...	\$1,445.00
150 block plan with \$100 declining balance	\$1,155.00

Upper-classmen living in housing areas that require purchase of a meal plan may select one of the plans listed above or one of the following:

125 block plan with \$175 declining balance	\$1,100.00
Declining Balance Account.....	\$915.00 or \$1,290.00

Students living in apartments and commuter students may select the following meal plan or any of those above:

Declining balance account	\$500.00

Any student, faculty or staff member may purchase or add additional Optional Dining Account funds to their 49er ID card. Optional Dining Accounts can be purchased from the 49er Card Office, located in the Auxiliary Services Building

or in the ID/Dining Services Office, located in the Cone University Center, or at web site www.auxiliary.uncc.edu. New Optional Dining Accounts require no minimum purchase and may be paid by cash, check, or charged to Visa or MasterCard.

SPECIAL ASSESSMENTS

During 2004-2005, the following special assessments were charged to cover the cost of supplies or special materials (per semester, except where indicated otherwise):

Nursing Course Fee (NURS 3203, 3253).....	\$45.00
Scuba Diving (KNES 2219)	\$60.00
Advanced Scuba Diving (KNES 2220)	\$35.00
Applied Music Fee (1 credit hour)	\$45.00
Applied Music Fee (2 credit hours).....	\$90.00
College of Engineering Student Fee	
1-7 hours (per academic year).....	\$76.00
8 hours or more (per academic year).....	\$150.00
College of Information Technology student fee	
1-7 hours (per academic year).....	\$76.00
8 hours or more (per academic year).....	\$150.00
Teacher Licensure Fee.....	\$30.00
Experiential Education Fee.....	\$60.00
Architecture Major General Student Fee	
(per academic year).....	\$80.00
International Student Fee (per academic year)	\$100.00
Administrative Cancellation Fee	\$75.00

Application Fee. A \$35 application fee must be submitted with the application for admission. The fee is not deductible and is not refundable.

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

A \$100 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 cancellation dates).

Student Activities Fee. A part of the general fee provides students with a program of cultural, recreational, and entertainment activities. It pays for admission to many athletic contests, dramatic productions, activities sponsored by the University Program Board, social and entertainment functions, and for subscriptions to the campus newspaper and literary magazine.

Graduation Fee. Each member of the graduating class must pay a graduation fee of \$35 at the time he/she applies for the degree. This fee includes the cost of the diploma and the cap and gown. No reduction of the fee is allowed for those receiving degrees *in absentia*.

Credit By Examination Fee. Fees for credit by examination are as follows: A written examination for a course will require a fee of \$15. A laboratory examination

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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.

Tuition Surcharge. Undergraduate students who take more than 140 credit hours (or more than 110 percent of the hours required to complete their baccalaureate degree program) are subject to a 25 percent tuition surcharge on the excess hours taken. However, the surcharge will not apply to students who exceed these credit hour limits while completing their degree within the equivalent of four academic years, or in the case of five-year programs, within the equivalent of five academic years. Finally, the surcharge does not apply to students who entered the University before Fall 1994.

MOTOR VEHICLE REGISTRATION FEES

Students attending UNC Charlotte are required to register their motor vehicle(s) in order to park on campus; there is no free parking. Vehicle registration for fall and spring semesters begins two weeks prior to the first day of classes. Students may request parking permits to be mailed directly to them (fall term only) by contacting Parking Services at least one month prior to the beginning of classes (704-687-4285). Payment must be received before the permit is mailed. **Permits are required at 8:00 a.m. the first day of class.** Two categories of permits are issued: *Resident* (for students living on campus) and *Commuter* (for students living off campus).

Permits sold in August are good for one year. Students who graduate in December may return their parking permit for a partial refund. The price of the permit is the same for faculty, staff and students. Please reference the web at www.uncc.edu/parking for current fees. Parking Services receives no state funding; therefore, parking fees are used to defray construction and operating expenses.

Night permits, valid only after 3:00 p.m., are sold at a reduced rate using the same schedule as the regular student permits. Students with night permits who come on campus before that time must park and pay at the meters or in visitors' spaces.

Penalties for Parking Violations. Violators of University parking regulations are subject to monetary penalties ranging from \$5 to \$100, depending on the severity of the violation. Copies of parking regulations are distributed with the parking permit. 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 citations are issued 24 hours a day. Decals and meters are enforced from 8:00 a.m. until midnight, Monday through Thursday and from 8:00 a.m. until 3:00 p.m. on Friday.

Questions concerning parking on campus should be directed to Parking Services, which is open from 8:00 a.m. until 5:00 p.m., Monday through Friday. Emergency situations and questions at other times should be directed to 704-687-2200.

REFUNDS

TUITION AND FEES REFUNDS

A student who officially withdraws from the University in the fall or spring semester will receive a refund as follows:

Fall or Spring Semester	Percent of Tuition and Fees Refunded
Before 1 st Class Day	100%
Week 1	100% minus \$25 withdrawal fee
Week 2	100% minus \$75 withdrawal fee
Week 3	80%
Week 4	75%
Week 5	70%
Week 6	60%
Week 7	55%
Week 8	50%
Week 9	40%
After Week 9	0%

Summer School. Summer School refund schedules are reviewed and revised annually based upon the Summer School calendar. See www.summer.uncc.edu for the refund schedule for the current sessions.

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 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.

No refunds will be given to students who are withdrawn by administrative action for failure to comply with the North Carolina immunization laws.

Appeal Procedure. Appeals about tuition and dining refunds should be submitted in writing to Student Accounts, UNC Charlotte, Charlotte, NC 28223. Appeals about housing refunds should be submitted to Department of Housing, UNC Charlotte, Charlotte, NC 28223. Appeals are

heard on a monthly schedule by the Tuition, Housing, and Dining Appeal Committee.

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. 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.

Summer School. 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.

FINANCIAL AID

UNC Charlotte administers financial aid without regard to race, color, national origin, religion, sex, 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 and not simply taking courses.

APPLICATION PROCESS

To apply for the following programs, a student must complete the **Free Application for Federal Student Aid** using the instructions provided with the form. The form is available in the UNC Charlotte Financial Aid Office and in high school counseling offices. It may be completed online at www.fafsa.ed.gov.

Federal Stafford Student Loans
Federal Pell Grant*
Federal Perkins Loan
Federal Supplemental Educational Opportunity Grant*
Federal Work Study
N.C. Student Incentive Grant*
UNC Need Based Grants*
University Grants
University Loans
University Need-based Scholarships

* For undergraduate students only.

RENEWAL PROCESS

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

FINANCIAL AID PROGRAMS

LOANS

Federal Perkins Loan--Loans of up to \$4,000 per year are made to students' with the highest financial needs who apply by the University's established priority date of April 1. The interest rate is five percent with repayment beginning nine months after graduation.

Federal Stafford Loans--Qualified undergraduate applicants may borrow up to \$2,625 for the first year, \$3,500 for the second year, and up to \$5,500 per year for the remainder of undergraduate study. Graduate students may borrow up to \$8,500 per year. Independent students may be eligible to receive additional loan amounts.

The interest rate is variable, 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.

GRANTS

Federal Pell Grants--These are for undergraduate students and can range from \$400 to approximately \$4,000, 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 are for undergraduate students and range from \$200 to \$1,200. Eligibility is based on financial need and is determined within the UNC Charlotte Financial Aid Office, with priority to lowest income students who apply by the University's priority date of April 1.

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

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provided to students with exceptional financial need who apply by the University's priority date of April 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 April 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 by the program's deadline date of March 15 are considered for awards.

Employment On-Campus. The Student Employment Office assists students in locating work on campus. The University participates in the federal Work-Study Program and attempts to match students with jobs related to their academic interests.

Part-Time Employment Off-Campus. The University Career Center's Job Location and Development (JLD) Program assists students in obtaining part-time, summer and temporary employment off-campus. Job listings may be viewed online to registered students in *Campus Professional*. Jobs may include career-related positions in various fields such as education, business, entertainment, engineering and healthcare. The JLD Program is available to help students earn money for their academic and personal expenses during their enrollment at the University. Students are encouraged also to participate in career related experiences such as co-op, internships, and 49erships, which can be arranged through the University Career Center's Experiential Learning Program.

Education for the Vocationally Handicapped. Students who have suffered a disability that renders them vocationally handicapped 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 located at 401 S. Independence Blvd., (704) 342-5049.

Veterans Benefits. UNC Charlotte's Veterans Service Office (VSO), located in the Office of the Registrar, works with the Veterans Administration to assist in administering the various programs of benefit to veterans or eligible relatives of veterans. The VSO 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.

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. All inquiries should be referred to the North Carolina Division of Veterans Affairs, Albermarle Building, Suite 1065, 325 North Salisbury St., Raleigh, NC 27603, telephone (919) 733-3851.

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, but individual financial need is a consideration in the awarding of many of them. The University's major awards for merit are the:

Alumni Scholarships
Reese A. Overcash Scholarships
C. C. Cameron Scholarships
D. W. Colvard Scholarships
Lloyd C. and Luella L. Danielson Scholarships
Cameron Morrison Scholarships
Bonnie E. Cone Scholarships
R. L. Stowe Scholarships
E. K. Fretwell Scholarships
John L. and Margaret S. Fraley Scholarships
Provost Scholarships
Fay and Cal Mitchell Scholarships
Clara MacKay and Charles H. Stone Scholarships
J. Murrey Atkins Scholarships
Rebecca and Walter Roberts Scholarships

The Alumni Scholarships are awarded annually to continuing students of the University who have proven outstanding scholastic attainment, participated in University and/or community activities, and demonstrated campus leadership. The scholarships were established in 1978 to recognize outstanding full-time students and to encourage their continuing involvement and interest in the activities of the University. Information concerning the scholarships is distributed to each department and college within the University each year prior to the award and contains material outlining application procedures for the scholarships.

The Reese A. Overcash Scholarships are UNC Charlotte's most prestigious scholarships for merit. The Overcash family established the scholarship endowment 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.

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 UNCC

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.

The D. W. Colvard Scholarships honor 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. Dr. and Mrs. Colvard have 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.

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.

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 and Richmond Counties 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.

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 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.

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.

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.

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.

The Provost Scholarships honor the position of the Provost of the University and are designed to attract students with great potential.

The Fay and Cal Mitchell Scholarships were established in 1974 for students representing academic excellence and an SAT score of at least 1100.

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.

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.

The Rebecca and Walter Roberts Scholarships were established in 1999. The Roberts Scholarships were established to honor Walter and Rebecca Roberts. The education of Rebecca Roberts, a 1998 UNCC graduate, and the other children of Walter Roberts was ensured by a trust fund established by the Superior Continental Corporation following Walter Roberts' death. The remaining monies in the trust were generously donated to the University upon Rebecca Roberts' graduation.

The purpose of the Roberts Scholarships is to provide scholarship assistance to worthy non-traditional students pursuing a degree in Communication Studies. The Roberts Scholarships are awarded to applicants on the basis of their potential for success as Communication Studies majors.

Detailed information about the scholarships named above, including minimum qualifications, selection processes, and the amount of the stipends, may be obtained from the Undergraduate Admissions Office.

Need-based and Departmental Scholarships. Numerous other scholarships are administered by the Student Financial Aid Office. 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 better will be considered for scholarships.

ACADEMIC REGULATIONS AND DEGREE REQUIREMENTS

STUDENT RESPONSIBILITY

Each student is responsible for the proper completion of his or her academic program, for familiarity with the *University Undergraduate Catalog*, for maintaining the grade average required, and for meeting all other degree requirements. 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 deportment. 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 www.legal.uncc.edu/policies/#student. 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.

Each student is responsible for maintaining communication with the University and keeping on file with the Registrar's Office at all times a current address, including ZIP code, and telephone number.

Each student, while associated with the University, is expected to participate in campus and community life in a manner that will reflect credit upon the student and the University.

CATALOG POLICIES

The *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 at such times as the proper authorities determine and may apply not only to prospective students, but also to those who are already enrolled in the University.

Each new edition of the *Catalog* becomes effective at the opening of the fall semester following its publication. To receive a degree, an undergraduate student must complete satisfactorily all requirements described in the *Catalog* in effect at the time of first enrollment as a degree student at the University or all requirements described in the *Catalog* in effect at the time of graduation. Any student who changes from one major or minor to another must meet requirements of the new major or minor in effect at the time of the change.

Any student who leaves the University or changes to another major or minor for a period of one calendar year or longer and then returns to the University or to the original major or minor will be required to meet requirements in effect at the time of return.

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.

ACADEMIC ADVISING

Each student entering a degree program at UNC Charlotte is assigned an academic advisor or advisory committee in the student's major field. The Advising Center in the College of Arts and Sciences advises students who have not yet chosen a major field and may be consulted by other students for information about General Education requirements. The advisor assists the student to develop a plan of study based on the student's prior preparation and objectives. This assistance is not a substitute for the personal responsibility of the student described in the section of this *Catalog* on *Student Responsibility*.

COURSE LOAD

Credits/Semester Hours. The unit of measurement of University work is the *semester hour*. It ordinarily represents one lecture hour per week for one semester; however, a sequence of two or three laboratory hours is considered to be the equivalent of one lecture hour. Semester hours are also referred to as credit hours or credits. A bachelor's degree requires 120-128 semester hours.

Course Load. A course load of 15-18 hours constitutes a normal full semester program 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 written 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 six to seven credit hours. Enrollment in more than seven credit hours in a single summer session, or in concurrent summer sessions (e.g., a 10-week and a 5-week session), requires advance written 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 about two hours of study per week outside of class for each credit hour in which the student is enrolled. For example, enrollment in 16 hours would require about 32 hours of outside preparation per week.

Tuition Surcharge. Undergraduate students who attempt more than 140 credit hours (or more than 110% of the hours required to complete their baccalaureate degree program) are subject to a 25% tuition surcharge on the excess hours taken. However, the surcharge will not apply to students who exceed these credit hour limits while completing their degree within the equivalent of four academic years, or in the case of five-year programs, within the equivalent of five academic years. (One quarter of enrollment at an institution on the quarter system equals two-thirds of a semester.) Finally, the surcharge does not apply to students entering the University before Fall 1994.

Credit hours that count toward the specified limits include: all courses attempted at UNC Charlotte during the fall and spring semesters (including repeated courses, failed courses, and those dropped after the last date to drop or withdraw without record) and all transfer credit hours (except those earned during summer sessions at another UNC institution). The maximum transfer credit hours applied toward the surcharge limit are the total hours required for the degree less the 30 hours necessary to meet residence requirements. For complete information, please visit the following website: www.registrar.uncc.edu/surcharge.html.

University Student Surveys. For purposes of program assessment and improvement, as part of enrollment at UNC Charlotte, students may be required to complete three or more institutional student surveys, e.g., surveys of entering freshmen, second semester sophomores, and graduating seniors.

Student Classification. At the beginning of each semester, regular students working toward a bachelor's degree are classified on the basis of earned semester hours:

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

REGISTRATION

The Registrar is responsible for the management of the registration process by which students enroll in classes. Registration policies and procedures for each term are described in the **Schedule of Classes**; see the Registrar's web page at: www.registrar.uncc.edu.

Through the registration process, students assume academic and financial responsibility for the classes in which they enroll. They are relieved of these responsibilities only by formally terminating enrollment by dropping or withdrawing in accordance with procedures and deadlines specified in the **Schedule of Classes** each term.

Registration Appointment Time assignments are made according to student classification and credits and can be viewed on the web.

Registration Deadlines. University policies determine when students may enroll or adjust their enrollment in classes. Deadlines for the spring and fall semesters are shown below. (*Deadlines for summer sessions are approximately proportional based on the length of the session.*)

Register for classes through the eighth instructional day of the semester.

Drop a class without record (and remain enrolled in other classes) through the sixth instructional day of the semester.

Withdraw from the University without record through the sixth instructional day of the semester.

Drop a class with grade of W recorded (and remain enrolled in other classes) through the sixth week of classes in the semester. No student will be allowed to drop a course after this deadline unless there are extenuating circumstances recognized by the University.

Withdraw from the University with grade of W recorded after the sixth instructional day through the third week prior to the last day of classes of the semester. No student will be allowed to withdraw after this deadline unless there are extenuating circumstances recognized by the University. (See the *Termination of Enrollment* section of this *Catalog*.)

Prerequisites and Permits. Credit will be awarded only to students who are properly registered for it. All students, including visitors and non-degree students, are required to meet course prerequisites and to obtain the required permissions to enroll in courses specified in the **Schedule of Classes**.

Auditors. With the consent of the instructor, a student may register as an *auditor* for any class in which space is available. Fees and procedures for this non-credit enrollment are the same as those for a credit enrollment.

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 school).

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The participation of auditors in class discussion and in tests or examinations is optional with the instructor. Auditors receive no University credit, but they are expected to attend class regularly. A formal record of the audit on the student's transcript is entered at the discretion of the instructor at the end of the course. The procedure for adding or dropping an audit course is the same as for credit enrollments.

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 student 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* 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 Registrar's Office 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 College
Queens University of Charlotte
Stanly Community College
South Piedmont 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 NC Central University. The registration process is initiated in the Registrar's Office and requires the approval of the student's college dean.

TERMINATION OF ENROLLMENT

Drop. A student may terminate enrollment in a course but continue enrollment in other courses by following the procedure to drop a course specified in the **Schedule of Classes**. A student enrolled in only one course must withdraw officially from the University to drop the course.

Withdrawal from the University. Any student voluntarily leaving the University before the close of the term must withdraw officially. A student initiates the withdrawal procedure and files the completed form at the Registrar's Office in person or by letter. A withdrawal is effective when the form or letter is received by the Registrar's Office. A student who withdraws from the University after the sixth instructional day will receive the grade of *W* for all courses in progress. No student will be allowed to withdraw within two weeks prior to the last day of class (or as close to half the summer term as possible) unless there are extenuating circumstances such as serious illness recognized by the University and approved by the student's dean.

Any student who leaves the University before the close of a term without withdrawing officially will receive a failing or unsatisfactory grade (*F* for undergraduate credit and *U* for graduate credit) in each course for which he/she is registered. A graduate student who receives a *U* must appeal to the Dean of the Graduate School for reinstatement.

ATTENDANCE POLICY

Each instructor determines the attendance regulations for his or her classes. Students are expected to attend punctually all scheduled sessions in the courses for which they are registered and are responsible for completing the work from all class sessions.

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.

DEGREE OR MAJOR PROGRAMS AND MINORS

Declaration of a Major. Undergraduate students must declare and be accepted into a major field of study, or a pre-professional program, by the time they have earned 60 semester hours of credit. Transfer students entering with 45 to 74 semester hours must declare and be accepted into a major field of study by the time they have earned 15 semester hours at UNC Charlotte. Transfer students entering with 75 or more semester hours must be accepted into a major as a condition for admission. Students who do not satisfy these requirements must have permission from the dean of Arts and Sciences to register for classes.

To facilitate the declaration process, advising is required prior to registration for continuing students who have completed 45 hours or more and have not been accepted into a major or pre-professional program.

Change of Degree or Major Program. An undergraduate student may change from one degree program or area of academic concentration to another when space is available provided he/she meets the prerequisites for admission to the new program and has appropriate written approval via a "Declaration of Program" filed at the Registrar's Office.

Second Baccalaureate Major. Students who have earned a bachelor's degree from UNC Charlotte or are working on a bachelor's degree at UNC Charlotte may enroll in a program leading to a second major under the same degree provided: (1) the second major field selected is different from the first; (2) the student meets the requirements for acceptance into the second major program; and (3) the appropriate application for admission or "Declaration of Program" is filed and approved.

Minor. Students who have earned a bachelor's degree from UNC Charlotte or are working on a bachelor's degree at UNC Charlotte may enroll in a program leading to a minor (or minors) under that degree 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 "Declaration of Program" is filed and approved.

Second Baccalaureate Degree. Students who have earned bachelor's degrees from UNC Charlotte or other accredited institutions may enroll in a program leading to a second degree at the same level provided: (1) the major field selected is different from that of the first degree; (2) the degree sought is different from the first when that degree was granted by UNC Charlotte; and (3) the appropriate application for admission is filed and approved.

Students seeking a second baccalaureate degree must: (1) satisfy residency 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; and (3) satisfy all department and college requirements for the degree 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 who complete the equivalent of a double major in areas for which different degrees are awarded, but who have not met the requirements for the second degree, may have their accomplishment acknowledged by an appropriate notation on their transcript.

GRADING 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 Registrar's Office which is responsible for maintaining student academic records and making grades available to students.

Final Grades. Final grades are available through the secure student access pages of the 49er Express found at: www.express.uncc.edu.

Unsatisfactory grade reports are mailed to students in the middle of each semester for courses in which the student is performing below average.

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 Registrar and can be changed only if the grade has been assigned arbitrarily or impermissibly as defined in the Faculty's "Policy and Procedures for Student Appeals of Final Course Grades," available online at:

www.legal.uncc.edu/policies/GradeAppeal.html.

For guidelines on applying this policy, see: www.legal.uncc.edu/policies/GradeAppealGuide.html

Students should follow the procedures outlined in that policy if they believe that the final course grade that been assigned is incorrect. The policy encourages 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 of the next regular academic semester. 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 Change of Grade Form must be signed by his/her Department Chairperson and Dean.

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

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 or during the next semester (fall or spring) in residence, but no later than 12 months after the term in which the *I* was assigned, whichever comes first. 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.*

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., Graduate Thesis, Undergraduate Senior Project, etc.) The grade in the second term is also awarded for the course in the first semester. 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 or Drop). No grade will be given for a course dropped on or before the last day to drop a course without record. After this period a student who is permitted to drop or withdraw from a course will receive a grade of *W*. Only students with such extenuating circumstances as serious illness will be permitted to drop a course after the sixth week of classes in the semester or to

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withdraw from all courses during the last two weeks of classes in the semester. Unsatisfactory academic performance itself is not an extenuating circumstance. The date of withdrawal is determined when the withdrawal form is accepted by the Registrar's Office.

Pass/No Credit Option. Every student will be permitted during his/her *undergraduate* years to select a total of four courses in which he/she will be evaluated on a pass/no credit basis. Only one such course may be selected during an academic year. Every course in the University is offered on this basis *except* when taken by a student for departmental credit toward his/her major or minor or to satisfy University General Education (COGE) requirements. Courses completed with the grade of Honors or Pass will count toward graduation, but they will not be considered in the computation of the grade point average.

This option is designed to encourage curiosity, exploration, and experimentation in areas where a student has strong interest but little or no previous experience.

Note: Courses designated by the faculty to be graded only on a *Pass/No Credit* basis are not counted as part of this option. The student must declare his/her intention to take a *Pass/No Credit* option by the end of the eighth instructional day in the semester.

Grades for General Education Courses. A course taken to satisfy a General Education requirement must be graded A, B, C, D, F unless it is offered only with *Pass/No Credit* grading. The *Pass/No Credit* Option described above cannot be applied to General Education courses.

Repeated Courses. A student may receive credit for a course one time only unless the course description specifies that it "may be repeated for credit." In all other courses, a student who has received a grade of C, H, P or better in a course may repeat that course only with prior approval of the student's advisor, department chair, and dean. 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.

Progression Requirement. On April 16, 1998, the Faculty Council voted to rescind the progression policy (Course Exclusion Policy) in its entirety, effective immediately. Therefore, neither new students nor continuing students are now subject to any progression requirement.

Repeating Courses. On April 16, 1998, the Faculty Council voted to establish a single course repeat policy for undergraduate students, effective immediately, but with a grace period extending to August 15, 1999, for continuing students. Under the new course repeat policy, each grade earned in a repeated course is computed into the grade point average.

Grade Point Average (GPA). The grade point average for an undergraduate student is determined by multiplying the number of grade points for each grade by the number of semester hours credit received in that course, adding all accumulated grade points together, and then dividing by the total number of semester hours the student has attempted, except those for which the student received a grade of I, 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.

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	*
AU	Audit	*
NR	No recognition given for audit	*
Cooperative Education		
S	Satisfactory	*
U	Unsatisfactory	*
Pass/No Credit		
H	Honors	*
P	Passing	*
N	No Credit	*

* Not used in computation of grade point average

Grade Point Deficit. The grade point deficit is the number of additional grade points required to bring a student's cumulative grade point average up to 2.0.

GPA Calculation / Grade Point Deficit. GPA is calculated by dividing quality points (QPTS) by quality hours (QHRS).

QPTS are determined by multiplying the number of quality points for each grade (A = 4, B = 3, C = 2, D = 1, F = 0) by the number of semester hours credit associated with that course.

QHRS are the total number of semester hours the student has attempted, except for those for which a grade of I, W, P, AU, or N is recorded.

GRADE POINT DEFICIT is the difference between the number of quality points a student has earned and the number necessary to yield a GPA of 2.00. (Number necessary to yield a GPA of 2.00 is equal to 2 times the number of QHRS.)

Example of GPA Calculation / Grade Point Deficit

	GRD	QHRS	QPTS
ENGL 1101	B	3	9
MATH 1100	C	3	6
ESCI 1101	D	4	4
SEM. TOTALS		10	19

GPA = $19/10 = 1.90$

QPTS necessary for 2.00 is 20 (2×10)

Grade point deficit = 1

Related topics: Probation / Suspension

ACADEMIC RECORDS AND TRANSCRIPTS

The Registrar is responsible for maintaining the official academic records for all students. Upon *written request by the student*, 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.

Each student is entitled to one transcript without cost, regardless of how early in his/her academic career the request is made. A fee of \$3 per copy must accompany subsequent requests. Requests should reach the Registrar's Office at least one week before the date the transcript is needed.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA) NOTIFICATION

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

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 Registrar, dean, head of the academic department, or other appropriate official written requests that identify the record(s) they wish to inspect. The 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 amendment of the student's education records that the student believes are inaccurate or misleading.

Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading.

If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her 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 consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the University in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on

the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks.

A school official has legitimate educational interest if the official needs to review an education record in order to fulfill his/her professional responsibility.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by UNC Charlotte 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, 600 Independence Avenue, SW, Washington, DC, 20202.

UNC Charlotte intends to comply fully with these requirements. Policy Statement No. 69, "The Privacy of Educational Records," explains the procedures for compliance. Students may obtain copies of the policy in the Office of the Registrar or online at www.legal.uncc.edu/policies/ps-69.html. Copies of the policy statement are also available for inspection in the offices of each dean and department chair. The policy includes a list of the locations of all education records maintained by the institution.

The following categories of personally identifiable information about students have been designated as public or **directory information** that may be disclosed for any purpose without student consent: name, local and permanent address, telephone number, email address, date and place of birth, class, major field of study, dates of attendance, enrollment status, degrees and awards (including scholarships) received, participation in officially recognized activities and sports, weight and height of members of an athletic team, and the most recent previous educational agency or institution attended.

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 Registrar a written revocation of such request for non-disclosure.

All questions concerning this policy on educational records may be directed to the attention of the Registrar.

ACADEMIC HONORS

Chancellor's List. The Chancellor's List recognizes undergraduate 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.

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Chancellor's List recognition appears on the student's academic record (official transcript).

Dean's List. The Dean's List 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 as described for the Chancellor's List.

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.

Graduation With Distinction. Each of the undergraduate degrees is awarded *Summa Cum Laude* when the graduating student's cumulative grade point average is 4.0, *Magna Cum Laude* when it is at least 3.8 but less than 4.0, and *Cum Laude* when it is 3.4 or more but less than 3.8. 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.

REQUIREMENTS FOR CONTINUED ENROLLMENT

Good Academic Standing. An undergraduate student must maintain a cumulative grade point average of 2.0 or above at UNC Charlotte to remain in good academic standing.

Academic Probation. An undergraduate student who has a grade point deficit between 1 and 13 is placed on academic probation, and this is noted on the student's academic record and grade report.

Academic Suspension. A student is suspended when either of the following apply: (1) the student has a grade point deficit of 14 or more **OR** (2) the student fails to achieve good standing by the end of two successive semesters (excluding summer sessions).

However, a student will not be suspended:

- (1) who was in good standing at the end of the most recent regular semester (excluding summer sessions); **OR**
- (2) who is finishing the first regular semester of enrollment (excluding summer sessions) at UNC Charlotte; **OR**
- (3) who has a 2.5 GPA for the current semester (excluding summer sessions); **OR**
- (4) who is readmitted after a break in UNC Charlotte enrollment of two calendar years or more.

Exception for Summer Enrollment. Students who are on academic suspension are permitted to enroll in summer session classes. They are not eligible to continue enrollment in the fall and spring semesters until they have applied and been approved for readmission.

REQUIREMENTS FOR READMISSION AFTER ACADEMIC SUSPENSION OR TERMINATION

An undergraduate student under suspension must satisfy the admission requirements as stated elsewhere in this *Catalog* to qualify for readmission.

In addition, an undergraduate student who has been suspended for failure to satisfy the requirements for continued enrollment stated above will be ineligible for readmission until (1) an appeal is accepted through the Registrar's Office with the approval of the Department in which the student would major; (2) he/she meets the requirements for continued enrollment; (3) he/she earns an associate of arts (A.A.) degree from an accredited two-year institution; or (4) the student elects to use the Two-Year Rule. A suspended student is eligible for one readmission to the University (but not to a specific program) using either the A.A. Degree Rule or the Two-Year Rule. *(See Readmission of Former Students in this Catalog.) If readmitted, the student is expected to satisfy the requirements for continued enrollment.*

Note. Readmission after suspension is not automatic. An application for readmission must be made and approved. Included in the approval must be an acceptance from the Department in which the student would major. *(See the section on Readmission of Former Students elsewhere in this catalog.)*

ACADEMIC SUSPENSION APPEAL PROCEDURES

Undergraduate students may appeal an academic suspension by submitting a written statement to the Office of the Registrar via the web (www.registrar.uncc.edu/susp.html).

Other grievances relating to academic status are to be addressed by the college where the grievance arises or, if no particular college is appropriate, by the University Registrar.

Written procedures are available from the dean of each college and the Registrar's Office. For additional information, see "Student Grievance Procedures" at www.legal.uncc.edu/StudentGrievanceProcedure.html.

TRANSFER CREDIT AND ADVANCED ACADEMIC STANDING

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 Undergraduate Admissions Office.

UNC Charlotte will accept appropriate undergraduate credits earned through AP, IB, CLEP, correspondence courses, extension courses, 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).

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 contact the Office of Undergraduate Admissions. View score requirements at www.uncc.edu/admissions.

International Baccalaureate Program (IB). The University will award credit for subjects in which students score appropriate scores on the IB examinations. Contact the Office of Undergraduate Admissions for further information. View score requirements at www.uncc.edu/admissions.

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
Principles of Management
Introductory Accounting
Introductory Business Law
Principles of Marketing

Education

Introduction to Educational Psychology
Human Growth and Development

Foreign Language

College French I & II
College German I & II
College Spanish I & 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 & II
Introduction to Psychology
Introduction to Macroeconomics
Introduction to Microeconomics
Introduction to Sociology
Western Civilization I & II

CLEP credit will be awarded according to UNC Charlotte policy in place at the time of evaluation. View score requirements at www.uncc.edu/admissions.

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. Transcripts are evaluated in the Admissions Office 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 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. Any course from an accredited institution that transfers as a course on the General Education list carrying the "IR" (initiation date retroactive indefinitely) notation will satisfy the goals for which the UNC Charlotte course is applicable. All restrictions that apply to UNC Charlotte courses apply to transfer courses.
5. No credit below C level will be accepted; grade points and averages do *not* transfer.
6. Transfer credit is awarded only upon receipt in the UNC Charlotte Admissions Office of an official transcript from the institution where the credit was earned.

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 and up to three hours of elective credit. The military training credit must be part of the student's first 30 hours at UNC Charlotte and 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 Registrar's Office 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.

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 Registrar's Office prior to enrollment at another institution.

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2. No credit will be accepted for courses below *C* level for undergraduate students or below *B* level for graduate students.
3. The student must request that an official transcript be mailed to the Registrar's Office upon completion of the course. A form for this purpose is available in the Registrar's Office.

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.

GRADUATION

Application for the Degree. Each student should make application for his/her degree no later than the filing date specified in the University calendar. The application may be submitted through the Registrar's web page. The fee for graduation is \$35. Degrees are awarded at commencement exercises held at the end of the Fall and Spring semesters; however, the diploma and transcript will reflect the term in which all requirements were completed.

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 Office of Student Academic Services (OSAS) in the College of Education. OSAS 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.

BACCALAUREATE DEGREE REQUIREMENTS

Credit Hours. The baccalaureate degrees require completion of 120-128 semester hours of credit, including all requirements for a major field of study. Specific requirements for degrees and programs are presented in the *Courses of Study* section of this *Catalog*.

Residence. 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.

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 residence requirement.

Grade Point Averages. To graduate, a student must have an overall 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. See the *Courses of Study* section of this *Catalog*.

Course Levels. Junior and senior students are required to have the consent of the major department to enroll in any course below the 3000 level not required in their degree program.

General Education. All baccalaureate degrees at UNC Charlotte include a common set of General Education requirements.

Requests for Exceptions. Requests for exceptions to any aspects of the General Education requirements for individual students must be approved by the Associate Dean of Arts and Sciences. Such exceptions may be requested by completing the Special Request Form, including recommendations of approval by the student's Advisor, Chairperson and Dean, and submitting it to the Registrar's Office.

GENERAL EDUCATION PROGRAM

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 (*liberalis*) 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, literature, the Western cultural tradition, global understanding, citizenship,

ethics, issues of health, and issues of science, technology, and society. Fourth, it helps students develop more specialized skills for disciplinary writing and oral presentations.

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

Basic writing courses: Students take two courses, ENGL 1101 and ENGL 1102. Entering freshmen who qualify for the accelerated course in writing and rhetoric may meet this requirement by completing one course, ENGL 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.

Mathematical and logical reasoning: One course in mathematics (MATH) and a second course selected from mathematics (MATH), statistics (STAT), or deductive logic (PHIL 2105). 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: By the end of their first semester at UNC Charlotte, students are expected to have developed the basic skills necessary to access and create computer based information. These skills include the use of word processing, email, file management, internet searches, and library database searches. These skills are developed in English 1101 and 1103. Tutorial help is available at campus computer labs, and help with bibliographical search skills is available in the information commons of Atkins library. Students are expected to exhibit ethical behavior in the use of computers. More advanced information technology skills are required by individual departments and majors.

II. Inquiry in the Sciences (10 semester hours)

Two courses, at least one of which must be taken with a laboratory, in the life sciences and/or the physical sciences. These courses introduce students to the various methods of life sciences and physical sciences. 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)
 Biological Anthropology (ANTH 2141)
 Biology (BIOL 1110, 1115, 1273, 1274)
 Chemistry (CHEM 1111, 1112, 1203, 1204, 1251, 1252)
 Earth Sciences (ESCI 1101)
 Geology (GEOL 1200, 1210)
 Physics (PHYS 1101, 1102, 2101, 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)
 Geography (GEOG 1105)

Economics (ECON 1101 or 2101)
 Political Science (POLS 1110)
 Sociology (SOCY 1101)

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

The UNC Charlotte faculty has selected eight themes of a liberal arts education around which to offer a core of Liberal Studies 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.

Each student must take four of these courses 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
 LBST 1102 The Arts and Society: Film
 LBST 1103 The Arts and Society: Music
 LBST 1104 The Arts and Society: Theater
 LBST 1105 The Arts and Society: Visual Arts

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 & Historical Awareness

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

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
 LBST 2212 Literature and Culture
 LBST 2213 Science, Technology, and Society
 LBST 2214 Issues of Health and Quality of Life
 LBST 2215 Citizenship

IV. Communication Skills

Writing in the disciplines: 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: AT LEAST ONE COURSE

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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.

Foreign languages: There are no foreign language requirements associated with the General Education Program. Requirements related to foreign languages are determined at the college or department levels. The College of Arts and Sciences, the College of Architecture, and the College of Health and Human Services all have a foreign language requirement. The foreign language requirement for the College of Arts and Sciences is listed below. The requirements for the College of Architecture and the College of Health and Human Services are listed under each college's section in the *Catalog*.

All students who earn an undergraduate degree within the College of Arts and 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 Arts and Sciences Fall 2005 and beyond. Students enrolled in the University prior to Fall 2005 but not enrolled in a degree program in the College of Arts and Sciences Fall 2005 and beyond will be subject to this requirement.

Although all students in the College of Arts and 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 Arts and 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.

Transfer of General Education Equivalent Courses

Students may meet any of the course requirements of the General Education Program with approved equivalent courses transferred from other institutions. At the time of admission, transcripts of work at other institutions are evaluated to determine equivalency. This includes equivalency for the Liberal Studies courses required in the General Education Program.

Transfer Students Who Are Exempt from the Lower Division General Education Requirements

Some transfer students are exempt from the lower division General Education requirements. The following

groups of transfer students who enter the University in the fall of 2003 or thereafter will have met the University's lower division, general education requirements:

- Students with A.A., A.S., or A.F.A. degrees;
- Students with A.A.S. degrees in a transferable or 2 + 2 program. **Note:** *Students must major in the program in which their A.A.S. degree is transferable. If students change major, then they will lose the exemption benefit.*
- Students who have met the academic core of the North Carolina Comprehensive Articulation Agreement from a NC community college.

That is, they will not have to take additional lower division courses to meet General Education requirements. They will still have to take a writing intensive course in their major and foreign language classes if required in their major.

PROGRAMS AND DEGREES OFFERED

Subject Area	Degree(s)	Minor	Teacher Licensure	Concentrations	Other
Accounting	BS				Cooperative Education; Honors
Actuarial Mathematics		•			
African-American Literature		•			
African-American and African Studies	BA	•			
Air Force Aerospace Studies (AFROTC)					
American Studies		•			
Anthropology	BA	•	See Social Studies		Honors
Architecture	BA/ BARCH				
Army ROTC (Military Science)					
Art	BA		•	Studio; Art History	
Art	BFA		•	Drawing; Painting; Printmaking; Ceramics; Fibers; Graphic Design; Illustration; Sculpture; Time Arts	
Art History		•			
Athletic Training	BS				
Biology	BA	•	•	Medical Technology	Cooperative Education; Honors
Biology	BS			Cell Biology; Physiology; Ecology/Environmental Biology; Microbiology	Cooperative Education; Honors
Biotechnology		•			

PROGRAMS AND DEGREES OFFERED

Subject Area	Degree(s)	Minor	Teacher Licensure	Concentrations	Other
Business Administration see specific topics: Finance, Industrial and Operations Management, International Business, Management, Management Information Systems, Marketing	BSBA				Cooperative Education; Honors
Chemistry	BA	•	•	Medical Technology	Cooperative Education; Honors
Chemistry	BS	•		Biochemistry	Cooperative Education; Honors
Child and Family Development	BA	•	Birth- Kindergarten Teacher Licensure		
Children's Literature		•			
Civil Engineering	BSCE				Cooperative Education; Master's Early Entry
Civil Engineering Technology	BSET				Cooperative Education
Cognitive Science		•			
Communication Studies	BA	•		Health Communication; Mass Media; Organizational Communication; Communications and Public Advocacy; Public Relations	Certificate in International Public Relations
Computer Engineering	BSCpE				
Computer Science	BA/BS	•			Cooperative Education; Undergraduate Certificates in Computer Programming and Computer Architecture
Criminal Justice	BA	•			

PROGRAMS AND DEGREES OFFERED

Subject Area	Degree(s)	Minor	Teacher Licensure	Concentrations	Other
Dance	BA	•	•		Undergraduate Certificate in Dance
Earth Sciences	BA	•	•		Cooperative Education; Honors
Earth Sciences	BS	•		Environmental Geology; Atmospheric Science – Hydrology; Environmental Information Systems	Cooperative Education; Honors
Economics	BS	•	See Social Studies	Business Administration; Social Science	Cooperative Education; Honors
Education See specific topics: Elementary Education, Middle Grades, Special Education			•		
Electrical Engineering	BSEE				Cooperative Education; Master's Early Entry
Electrical Engineering Technology	BSET				Cooperative Education
Elementary Education	BA		•		
Engineering See specific topic areas: Civil Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering	Baccalaureate				
Engineering Technology See: Civil Engineering Technology, Electrical Engineering Technology, Fire Safety Engineering Technology, Mechanical Engineering Technology	BSET				Cooperative Education
English	BA	•	•		
Film Studies-Foreign		•			

PROGRAMS AND DEGREES OFFERED

Subject Area	Degree(s)	Minor	Teacher Licensure	Concentrations	Other
Finance	BSBA			Financial Institutions/ Commercial Banking; Financial Management; Risk Management and Insurance; Finance	Cooperative Education; Honors
Fire Safety Engineering Technology	BSET				
French	BA	•	•		Certificate in Business Languages; Certificate in Translating
Geography	BA/BS	•	See Social Studies		Cooperative Education; Honors
Geology	BS				Cooperative Education
German	BA	•	•		Certificate in Business Languages; Certificate in Translating
Gerontology		•			
Health Fitness	BS				
History	BA	•	•		Honors
Industrial and Operations Management	BSBA				Cooperative Education; Honors
Information Science		•			
Interdisciplinary Health Studies		•			
International Business	BSBA				Honors
International Studies	BA	•			
Japanese		•			
Journalism		•			
Judaic Studies		•			

PROGRAMS AND DEGREES OFFERED

Subject Area	Degree(s)	Minor	Teacher Licensure	Concentrations	Other
Latin American Studies	BA	•			Honors
Management	BSBA			Managerial Leadership; Human Resources Management; Entrepreneurship	Cooperative Education; Honors
Management Information Systems	BSBA				Cooperative Education; Honors
Marketing	BSBA				Cooperative Education; Honors
Mathematics	BA/BS	•	•	Actuarial Science (BA)	Cooperative Education; Honors
Mechanical Engineering	BSME			Motorsports	Cooperative Education; Master's Early Entry
Mechanical Engineering Technology	BSET				Cooperative Education
Meteorology	BS				
Middle Grades Education	BA		•		
Military Science (Army ROTC)					
Music	BA	•			
Music Education	BM		•	Instrumental; Vocal; General Music	
Music Performance	BM				
Neuroscience Studies		•			
Nursing	BSN				
Philosophy	BA	•		Traditional; Applied Philosophy	Honors
Physics	BA	•			Cooperative Education; Honors

40 Programs and Degrees Offered

PROGRAMS AND DEGREES OFFERED

Subject Area	Degree(s)	Minor	Teacher Licensure	Concentrations	Other
Physics	BS			Applied Physics	Cooperative Education; Honors
Political Science	BA	•			Honors
Psychology	BA/BS	•			Honors
Religious Studies	BA	•			
Russian		•			
Social Studies Anthropology, Economics, Geography, History, Sociology (Contact the Coordinator of Licensure in the College of Education for more information.)			•		
Social Work	BSW	•			
Sociology	BA	•	See Social Studies		
Software and Information Systems	BA				
Spanish	BA	•	•		Certificate in Business Languages; Certificate in Translating
Special Education	BA		•	Mental Disabilities	
Technical and Professional Writing		•			
Theatre	BA	•	•		
University Honors					Honors
Urban Studies		•			
Western Antiquity & Classical Languages		•			
Women's Studies		•			

COLLEGE OF ARCHITECTURE

Dean: Professor Lambla; *Chair:* Betsy West; *Associate Dean:* Associate Professor Gray; *Professors:* Sauda, Brentrup, Walters; *Associate Professors:* Benzing, Carlson-Reddig, Grech, Nelson, Ryan, Snyder, Swisher, Thaddeus, Wong; *Assistant Professors:* Clark, Gamez, Reitinger, Samuels; *Part-time Lecturers:* Preiss; *Adjunct Professors:* Kelley, Williams, Farris, Cole; *Emeritus Professors:* Hight, MacLean.

Mission. The mission of the College of Architecture (CoA) is to further the discourse between the theory and practice of architecture by 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 College 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 problems. The professional degree path in the Advanced Program culminates in a comprehensive architectural project emphasizing self-direction and individualized instruction.

Admission. All students must first apply and be accepted by the University. Following acceptance to the University, application is then made to the College by: 1) completion and submission of a CoA application; 2) an evaluation of this application by a faculty committee; and, if selected, 3) a personal interview, including the presentation of samples of their creative work.

Admission to the College of Architecture is to the Five-Year *Bachelor of Architecture* program at the undergraduate level. Following Year 3, students are required to submit an "Individualized Study Plan" with the Academic Advisor which declares their intent to pursue one of two academic tracks: either a four-year, *Bachelor of Arts in Architecture* program (which is not a professionally accredited degree) or the five-year, *Bachelor of Architecture* program (professionally accredited).

However, students must maintain a minimum grade point average set by college faculty (3.0 in architectural studies through the fourth year) to be granted automatic continuation to the fifth year. Students who do not perform at this level must submit a separate application for admission to the fifth year *Bachelor of Architecture* program.

BACHELOR OF ARCHITECTURE

The professional program leads to the **Bachelor of Architecture** degree which requires a total of 158 credit hours. This five-year program provides the professional degree accredited by the National Architectural Accreditation Board (NAAB). Students in this program are also awarded a

Bachelor of Arts in Architecture degree at the end of four years.

Core Program. All students in the College complete a three-year core sequence of courses designed to provide a solid understanding of fundamental issues, knowledge, and skills in architecture. These courses include a series of coordinated studios, skill-building workshops and seminars, a four-semester sequence of architectural history (two survey courses and two topics electives), and four courses in building technology (one course in architectural materials, two semesters of structural design, and one course in Environmental Control Systems).

Advanced Program. Students proceeding toward the Bachelor of Architecture degree program enter the Advanced Program in their Fourth and Fifth Years of study. These years present the opportunity for greater depth of inquiry, breadth of understanding and synthesis through architectural design.

In the Fourth Year several topical design studios are offered which permit focused study. These include (typically): urban and community design, tectonic issues, lighting and energy use, landscape and site, and contemporary issues in architectural design. Additionally, students enrolled in the Advanced Program complete one remaining course in building technology (Building Systems Integration) and Professional Practice.

The Fifth Year is composed of a year-long sequence of two linked studios which are directed at an individual Comprehensive Architectural Project involving design research and application.

The College also offers a **one-year Bachelor of Architecture program** for students who have an architectural or environmental design degree from another NAAB accredited institution. Following an assessment of student performance criteria for equivalence with the UNC Charlotte program, students will be required to complete a minimum of 30 credit hours, including 12 hours of architectural studio, nine hours of other architectural courses and nine hours of general studies. No transfer credit is accepted for this program.

Foreign Language Requirement. All students who earn a degree in the College of 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 course work 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) through 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).

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Curriculum Outline: Bachelor of Architecture

Core Program

First Year

ARCH 1101 Architecture Design Studio 1	5
ARCH 1601 Architectural Seminar	2
MATH 1103	3
ENGL 1101	3
LBST 1101, 1102, 1103, 1104 or 1105	3

ARCH 1102 Architecture Design Studio 2	5
ARCH 1602 Architectural Seminar	2
MATH, STAT or PHIL	3
ENGL 1102	3
PHYS 1101 with lab (Physical Science)	4

Second Year

ARCH 2101 Architecture Design Studio 3 (O)	5
ARCH 2601 Architectural Seminar (W)	3
ARCH 4211 Architectural History I	3
*Life or Physical Science	4
LBST 2101	3

ARCH 2102 Architecture Design Studio 4	5
ARCH 4312 Architectural Materials	3
ARCH 4212 Architectural History II	3
LBST 2102	3
Social Science (Gen Ed)	3

Third Year

ARCH 3101 Architecture Design Studio 5	5
ARCH 4313 Structures 1	3
ARCH 4315 Environmental Control Systems	3
Foreign Language	4

ARCH 3102 Architecture Design Studio 6	5
ARCH 4314 Structures 2	3
ARCH 4214 Topics in Arch. History	3
ARCH 4050 Architectural Elective*	3
Foreign Language	4

(Individual Study Plan Required of all students)

Advanced Program

Fourth Year

ARCH 4101 Topical Architectural Studio	5
ARCH 4213 Topics in Arch. History	3
ARCH 4050 Architectural Elective*	3
LBST 2211, 2212, 2213, 2214 or 2215	3

ARCH 4102 Topical Architectural Studio	5
ARCH 4050 Architectural Elective*	3
General Elective* (W)	3
Architectural or General Elective*	3

Bachelor of Arts degree in Architecture: 128 hours

Fifth Year

ARCH 4103 Project Document	6
ARCH 4317 Bldg. Systems Integration	3
Architectural or General Elective*	3
Concepts & Ideas Course	3

ARCH 4104 Project Design	6
ARCH 4112 Architectural Practice	3
Architectural or General Elective*	3
General Elective*	3

Bachelor of Architecture: 30 hours

BACHELOR OF ARTS IN ARCHITECTURE

Students submitting an “Individualized Study Plan” in their Third Year may alternatively pursue a four-year Bachelor of Arts degree with a major in Architecture requiring a total of 128 credit hours. This degree is not an accredited first professional degree. The course requirements for this degree track differ substantially from those of the Bachelor of Architecture program. These differences are primarily aimed at providing a flexible curriculum that replaces design studios and Structures II with directed electives.

This degree is for students not intending to continue to the five-year, professional degree. Students choose to augment their architectural studies with coursework from other University departments in their fourth year, double major or minor in other disciplines, or prepare to pursue graduate studies in related fields (such as, planning, urban design, landscape architecture, or architectural history).

Curriculum Outline: Bachelor of Arts in Architecture

First Year

ARCH 1101 Architecture Design Studio 1	5
ARCH 1601 Architectural Seminar	2
MATH 1103	3
ENGL 1101	3
LBST 1101, 1102, 1103, 1104 or 1105	3

ARCH 1102 Architecture Design Studio 2	5
ARCH 1602 Architectural Seminar	2
MATH, STAT or PHIL	3
ENGL 1102	3
PHYS 1101 with lab (Physical Science)	4

Second Year

ARCH 2101 Architecture Design Studio 3 (O)	5
ARCH 2601 Architectural Seminar (W)	3
ARCH 4211 Architectural History I	3
*Life or Physical Science	4
LBST 2101	3

ARCH 2102 Architecture Design Studio 4	5
ARCH 4312 Architectural Materials	3
ARCH 4212 Architectural History II	3
LBST 2102	3
Social Science (Gen Ed)	3

Third Year

ARCH 3101 Architecture Design Studio 5	5
ARCH 4313 Structures 1	3
ARCH 4315 Environmental Control Systems	3
Foreign Language	4

ARCH 3102 Architecture Design Studio 6	5
ARCH 4314 Structures 2 (Optional)	3
ARCH 4214 Topics in Arch. History II	3
ARCH 4050 Architectural Elective*	3
Foreign Language	4

(Individual Study Plan Required of all students)

Fourth Year

ARCH 4213 Topics in Arch. History I	3
General Elective* (W)	3
LBST 2211, 2212, 2213, 2214 or 2215	3
Architectural or General Elective*	3

Architectural or General Elective*	3

Architectural or General Elective*	3
General Elective*	3
General Elective*	3
General Elective*	3

Bachelor of Arts degree in Architecture: 128 hours

**Courses to be selected in accordance with program of study developed with and approved by faculty advisor.*

Academic Standards. Following are specific academic standards for each degree program:

B.A. degree in Architecture: One grade of *D* in a studio is permissible. A grade of *D* in a subsequent studio will require repeating the course. A student may not repeat a course more than once. Successive *D* grades will result in academic suspension.

To graduate, an overall grade point average of 2.0 must be achieved in all courses offered by the College.

Bachelor of Architecture degree: A grade of *C* is the minimum passing grade in both studios, ARCH 4103 and 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 CoA.

A grade of *F* in either ARCH 4103 or 4104 requires a student to reapply to the 5th year program.

To graduate, all students must maintain an overall grade point average of 2.5 in Fifth-Year coursework offered by the College.

Areas of Academic Focus. College faculty offer expertise to provide instruction in the following areas:

Architectural Design Studios and Seminars: The studios and seminars provide both analytical and synthetic experiences along with the opportunity to pursue intense study of physical-environmental related subject(s). These courses link humanistic, physical phenomena, social-psychological, behavioral and perceptual studies.

Building Technology Courses: These courses provide a basic quantitative and qualitative understanding of building materials, structural theory and design, environmental control issues, and building systems integration.

Architectural History Courses: These courses develop an understanding of the relationships between culture and its physical manifestations from ancient to contemporary times.

Architectural Electives: These courses provide opportunities for topical study of issues current and historic to architectural practices: theoretical concerns, urban design, landscape, representational ability, technical skill, community practice, and constructional/making concerns.

Electives are organized around the following three themes or concentrations:

(1) Architectural Design, Theory, & Practice

This concentration focuses on a sophisticated and detailed

study of building and site design involving issues of form, space, order, and typology as well as cultural and physical context, concept, meaning, etc. It includes both investigation and criticism of contemporary practice and practitioners as well as the role of theory and historical precedent relative to the design and making of architecture.

(2) Urbanism

This concentration focuses on the critical role of architecture in the city - the process and specific intent of physical intervention 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 study and experimentation addressing emerging issues of sustainable design and the creative development of building envelopes and systems that utilize both new and traditional materials, technology, and construction methods in innovative and beautiful ways. Seeking to explore the historical as well as contemporary realms of thermal, tactile and visual issues embedded in this field, students address appropriate material selection, methods of daylighting, passive and active systems for heating and cooling, etc. with consideration of both qualitative and quantitative outcomes.

Independent Studies: When appropriate, a student may pursue a self-directed, faculty-approved study of a particular, significant architectural topic or subject.

General University Requirements and Directed Electives: Courses to meet the University's General Education requirements and elective studies are included in a student-selected, faculty-approved plan of study.

Advising: The advising program consists of three tiers: Staff Academic Advisor; Core and Advanced Program Coordinators; and faculty career advisors.

Education Abroad Programs: The College has conducted studio and field study summer programs in Italy and Spain since 1987 for students in the Advanced Program. 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); The University of Applied Science, (Aachen, Germany); Monterrey Tech (Monterrey, Mexico); and the Henry van de Velde Institute (Antwerp, Belgium).

Accreditation. The College 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 College has maintained full accreditation standards as prescribed by this board and includes the requisite statement:

"In the United States, most state 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 US professional degree programs in architecture, recognizes two types of degrees:

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the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree, which when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The NAAB grants candidacy to new programs that have developed viable plans for achieving initial accreditation. Candidacy status indicates that a program should be accredited within six years of achieving candidacy, if its plan is properly implemented."

COLLEGE OF ARTS AND SCIENCES

Dean: Professor Gutierrez; *Associate Dean:* Professor Hill; *Associate Dean for General Education:* West; *Associate Dean for Instructional and Informational Technology:* Pike; *Associate Dean for University Honors:* Maisto; *Director of Sponsored Research:* King; *Director, College of Arts and Sciences Advising Center:* Thomas

Objectives. The College of Arts and Sciences, largest of the University's seven colleges, consists of 21 departments and eight programs which share basic educational values and academic aspirations. The primary mission of the college is threefold: 1) the provision of programs of study and instruction in the arts and sciences to qualified undergraduate and graduate students; 2) the advancement of the arts and sciences through the scholarly activity of the faculty; and 3) the provision of service to the University and general public.

The liberal arts are the core of the University's educational program, both for students majoring in Arts and Sciences and for students majoring in professional degree programs. As a result, courses offered within the College of Arts and Sciences are frequently those designated to satisfy University General Education requirements (see *General Education Requirements* for all Baccalaureate Degrees).

Organization. The College of Arts and Sciences includes the Departments of Aerospace Studies (Air Force ROTC); African-American and African Studies; Art; Biology; Chemistry; Communication Studies; Criminal Justice; Dance and Theatre; English; Geography and Earth Sciences; History; Languages and Culture Studies; Mathematics and Statistics; Military Science (Army ROTC); Music; Philosophy; Physics and Optical Science; Political Science; Psychology; Religious Studies; and Sociology and Anthropology. Interdisciplinary programs in American Studies, Gerontology, International Studies, Latin American Studies, Liberal Studies, Public Policy, and Women's Studies are also part of the College of Arts and Sciences. In addition, the University Honors College (see University Honors section of this *catalog*) is housed within the College of Arts and Sciences.

Programs. Baccalaureate degrees are offered in all departments and minors are available in the following programs: Actuarial Mathematics, African-American Literature, African-American and African Studies, American Studies, Anthropology, Biology, Biotechnology, Chemistry, Cognitive Science, Communication Studies, Criminal Justice, Dance, Earth Sciences, English, Film Studies, French, Geography, Geology, German, Gerontology, History, History of Art, International Studies, Japanese, Journalism, Judaic Studies, Mathematics, Meteorology, Music, Philosophy, Physics, Political Science, Psychology, Religious Studies, Russian, Sociology, Spanish, Technical and Professional Writing, Theatre, Urban Studies, and Women's Studies. Medical technology options are available in Biology and Chemistry.

The following graduate degrees are offered by the College of Arts and Sciences: Master of Arts degree with majors in Arts Administration, Biology, Clinical/Community Psychology, Communication Studies,

English, English Education, Geography, Gerontology, History, Industrial/Organizational Psychology, Liberal Studies, Mathematics Education, Religious Studies, Sociology, and Spanish; Master of Science degree with majors in Applied Physics, Biology, Chemistry, Criminal Justice, Earth Sciences, Mathematics (with concentrations in Applied Mathematics and Applied Statistics) and Optical Science and Engineering; Master of Public Administration; and Ph.D. degrees in Applied Mathematics, Biology (Biomedical/Biotechnology), Curriculum and Instruction, History (with Aberdeen), Infrastructure and Environmental Sciences, Optical Science and Engineering, and Public Policy. *For information regarding graduate programs, please refer to the Graduate Catalog.*

In addition, graduate certificates are offered in the following areas: Applied Ethics, Applied Linguistics, Cognitive Science, Communication Studies, English Language Studies, French, Gerontology, German, Nonprofit Management, Spanish, and Technical/Professional Writing. *(For information, see the Graduate Catalog.)*

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.

Advising Center. The College of Arts and Sciences administers an advising center for students who have not selected a major. Students admitted to the University who have not determined their career goals are urged to seek assistance from the staff of the Advising Center. Any student, regardless of major, is encouraged to consult with these advisors to clarify academic regulations.

Degree Requirements

General Education: 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 and Minors: Students in the College of Arts and 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 Arts and 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 Languages: All students who earn a degree within the College of Arts and 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 Arts and Sciences Fall 2005 and beyond. Students enrolled in the University prior to Fall 2005 but not enrolled in a degree program in the College of Arts and Sciences Fall 2005 and beyond will be subject to this requirement.

Although all students in the College of Arts and 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 Arts and 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.

Experiential Learning Opportunities. Students are encouraged to participate in professional work experiences in support of their academic and career development through the cooperative education, 49ership, and internship programs offered to students in the College. The College is working 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 programs, contact the University Career Center.

Cooperative Education involves professionally related, paid work experiences in multiple semesters. It does not offer academic credit, but it is noted on the student's transcript. To participate in this program, students must have a minimum GPA of at least 2.5, meet specific departmental requirements, and pay a participation fee. Approval for enrollment must be arranged before the student begins the work experience. Most students begin this program during their junior year; transfer students must complete one semester at UNC Charlotte before making application for the program. Students maintain full-time student status during their co-op work semesters.

Internships usually involve one semester of a professional experience that allows a student to test his or her career options. Academic requirements for participation vary by department. Typically, a GPA of at least 2.5 is required. With faculty approval, students may receive academic credit for their work experience; non-credit internships are available through the University Career Center. All internships must be arranged in advance.

49erships involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours 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 their freshman year, and have a 2.0 minimum cumulative GPA are eligible. It does not offer academic credit, but it is noted on the student's transcript; students pay a participation fee. Approval for enrollment must be arranged before the student begins the work experience. Students may begin this program during their sophomore year; transfer students must complete one semester at UNC Charlotte before making application for the program. For more information, contact the University Career Center.

Service Learning Opportunities through the University Career Center. Service Learning opportunities include 49erships in non-profit and government agencies and organizations, enabling students to gain career related and community service experience while learning about related social, civic, human service, and political issues. Students work a minimum of 80 hours per semester to complete the program. Fall and spring 49erships are part-time, and summer 49erships may be full or part-time. Students must qualify academically, and pay a registration fee for transcript notation. 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. Students receive transcript notation, but not academic credit.

Department of Aerospace Studies

Chairman: Professor (Mil.) Laden; Assistant Professors (Mil.): McDaniel, Jackson

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.

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 3100 and 3200) courses, and they may attend the lower-level courses. Participation in Leadership Laboratory courses is available by special permission from the Department.

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 three 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 and, upon graduation, no more than 34 years of age. For those with prior military service, commissioning must occur not later than age 35. If designated for flight training, the student must be able to complete all commissioning requirements prior to age 29½.

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 demonstrate proficiency or successfully complete courses in mathematical reasoning and English composition before commissioning.

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 better 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 an Air Force base normally between the sophomore and junior years. All students in the POC receive a tax-free stipend of at least \$350 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.

Two-Year Program. The basic requirement for entry into the two-year program is that the student has two academic years of college work remaining, either at the undergraduate or graduate level, or a combination of both. Applicants seeking enrollment in the two-year program must pass Air Force aptitude, physical fitness, and medical examinations and be selected by a board of Air Force officers. Students attend a six-week field training course at an Air Force base normally between the junior and senior years. Upon completion of the POC and the college requirements for a degree, the student is commissioned as a second lieutenant. All students in the two-year program receive a tax-free stipend of at least \$350 per month.

One-Year Program. This program is designed for students entering their senior year or graduate school. Specific details for this program are announced annually. Cadets in the one-year program complete the Professional Officer Corps (POC) in approximately 15 months, which includes a 6-week field training encampment. Students normally attend the encampment prior to entering the program. Eligible students receive Air Force ROTC scholarship benefits of tuition, payments of fees and books, and a tax-free stipend of at least \$350 per month.

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 one-

year, two-year, 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 \$250 a month.

Four-year scholarships also are available to high school students. High school students interested in applying should contact the Unit Admissions Officer within the Department. Initial four-year scholarship packages must be postmarked by December 1 of the year prior to enrollment.

ADJUNCT PROGRAMS

Field Training. Field Training courses are normally completed during the summer between the sophomore and junior years. One covers a four-week period for students in the four-year program; the other lasts six weeks and is designed for two-year program applicants. Students in the one-year program normally complete a six-week session during the summer prior to entering the program. Transportation, lodging, meals, and approximately \$150 per week 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, combat survival training, and summer engineering projects. Transportation, lodging, meals, and approximately \$200 per week are provided by the Air Force during participation in this voluntary program.

Flight Training. Cadets designated to enter Air Force Undergraduate Pilot Training after graduation may participate in Initial Flight Training during their junior or senior year, at no expense to the student. This training also includes ground school instruction. Additionally, any cadet may apply to participate in an eight-hour flight orientation program any time during enrollment in AFROTC.

Department of African-American and African Studies

Chairperson and Frank Porter Graham Professor: Azevedo; *Professor:* Ojaide; *Associate Professors:* Ruiz; Nmoma; *Assistant Professor:* R. Smith; D. Smith; *Adjunct Professors:* Aborisade, Davis, Flint, Leak, Mixon, Whitaker.

The African-American and African Studies program addresses itself to the experience of peoples of African descent on the continent of Africa and in the Diaspora, particularly in the United States. It provides a coherent focus on the history, economy, politics, literature, religion, and culture of black people throughout the world and their interaction with the rest of humankind. Its interdisciplinary approach, drawing from the experience of faculty trained in the areas of African-American and African Studies, 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 community development agencies; federal, state, and city civil service; business; museums and archives; and diplomatic or foreign service; as well as research, journalism, international organizations, and teaching.

The goals of the Department of African-American and African Studies are:

1. To provide and preserve knowledge with purpose and direction about the aggregate experience of peoples of African descent by offering a Bachelor of Arts degree in African-American and African Studies and courses in the field to the University community and the public.
2. To foster intercultural understanding, expose and correct biased scholarship, and dispel myths and stereotypes through course content, programs, exchanges, and cultural interaction.
3. To provide a cultural background (through courses, advising, and other meaningful activities) supportive to students, particularly African-American students, in moving toward personal growth and self-awareness.
4. To provide general and specific academic skills to majors and non-majors through courses and activities that promote research, writing, reading, and effective communication.
5. To promote an African-American and African perspective that will foster a political consciousness about the common bond uniting blacks in the Diaspora and the African continent.
6. To prepare and assist students for career choices in life and graduate and professional schools through exposure to relevant experiences, courses, and the demands of the working world.
7. To establish and maintain the Department's interdisciplinary and intercultural nature through cooperative arrangements with other academic departments and civic and cultural institutions.
8. To generate new knowledge and paradigms about the African-American and African experience through research, publication, and constant communication with similar programs.
9. To promote faculty development by providing required financial means, time, resources, and proper environment

to accomplish this end.

Study Abroad. Students may have an opportunity to travel, work, and study abroad in an exchange program through an African university, the Peace Corps, and Operation Crossroads.

BACHELOR OF ARTS

Students interested in the African-American and African Studies major leading to a B.A. degree are required to complete a minimum of 30 credit hours in the fields of African-American and African Studies, chosen from AAAS 1100, 1111, 1112, 1103 or 1104, 2203, 2204, 2205, 2206, 3290, 3601 and 3990. Students may not graduate without completing AAAS 1100, 1111, 1112, 3290, and 3601. Students are strongly encouraged also to take AAAS 2201 when offered. In order to acquire experiences to enhance their career choices, students majoring in African-American and African Studies are recommended to pursue a double major in related areas such as history, political science, sociology, religious studies, criminal justice, anthropology, and psychology. Furthermore, students have the option to concentrate either in the African-American or the African dimension of the program.

The required junior research methods and senior seminar courses introduce students to research methodology and an in-depth probe into the themes and theories of African-American and African Studies. During the junior or senior year, with the instructor's assistance in the research methods class, students design and work on a major research project. Using library, archival, or community resources, students demonstrate practical mastery and synthesis of the skills and knowledge acquired through the major courses of study. Consult the Department of African-American and African Studies for a Suggested Schedule to complete the B.A. degree with a major in African-American and African Studies.

Senior projects, which may vary in the number of credit hours, require student involvement in co-op programs, internships, or community agencies such as the Afro-American Cultural Center, the Greenville Center, City Hall, *The Leader*, the Metrolina Association for the Blind, Planned Parenthood, the *Charlotte Observer*, and the *Charlotte Post*.

MINOR

A Minor in African-American and African Studies consists of a minimum of 18 semester hours: six hours each at the 1000 level, the 2000 level, and the 3000 or above level. Required courses are AAAS 1100, a 2000 level course in the African Diaspora component and a course in the continental component of the Department's program. A minimum GPA of 2.0 in the hours attempted for the minor is required. AAAS 3895 shall not count towards the minor.

American Studies

INTERDISCIPLINARY STUDIES

Director: Paula Eckard

American Studies is an interdisciplinary program designed to develop in-depth knowledge of American society, past and

present. Drawing its curriculum from approved classes 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.

AMERICAN STUDIES MINOR

A minor in American Studies consists of 18 semester hours: six hours of American Studies courses including AMST 3100, and 12 semester hours of American Studies courses or approved American-content courses from other departments. A maximum of six of these hours may be in the student's major. All students must have a grade point average 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 Director. Other classes 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.

African-American and African Studies: 1100, 1102, 1111, 2203, 2204, 2215, 2301, 3050, 3101, 3179, 4106, 4107, 4108
 American Studies: 2050, 2100, 3000, 3050, 3090, 3100, 3210, 3800
 Anthropology: 2112, 2152
 Architecture: 1100, 4214
 Art: 3117, 3119
 Communication Studies: 2120, 3131
 Criminal Justice: 3102, 3110, 3120, 3121, 3140, 3141, 3150, 3151
 Economics: 1101, 1201, 1202, 2101, 2102, 3131, 3105, 3115, 3141
 English: 2104, 2301, 3132, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3155, 3156, 4103, 4141, 4143, 4144, 4145, 4146, 4147, 4148, 4156, 4157, 4158
 Geography: 2155, 2160, 3100, 3105, 3110, 3115, 3200
 History: 1160, 1161, 2000, 2101, 2120, 2141, 3179, 3181, 3201, 3202, 3211, 3212, 3213, 3214, 3215, 3216, 3241, 3242, 3252, 3256, 3259, 3281, 3288, 3290, 4610
 Music: 1133, 1134
 Philosophy: 3050, 3217, 3243, 3060
 Political Science: 1110, 2120, 3010, 3101, 3102, 3103, 3104, 3105, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3121, 3124, 3125, 3126, 3128, 3157
 Religious Studies: 2108, 3135, 3137
 Sociology: 2112, 2132, 2171, 3110, 3173, 4124, 4125, 4134, 4135, 4150, 4168, 4632
 Women's Studies: 1101

Department of Art

Chair: Professor Strassberg; *Professors Emeritus:* Anderson, Kampen, MacKillop, Strawn; *Associate Professors:* Bezner, Brenner, Edgar, Franki, Hoover, Hudson, Murphy, Tuma, Tite; *Assistant Professors:*

Brodeur, Carter, Frakes, Godlewska, Noble, Pollack, Tweedy; *Lecturers:* Bergmann, Bryant, Hawthorne, Kaineg, Kluttz, Rothrock, Wall; *Gallery Manager/Facilities Coordinator:* Butckovitz

The Department of Art offers a diverse and comprehensive program leading to a Bachelor of Fine Arts, a professional degree, and the Bachelor of Arts, a liberal arts degree in art. Students pursuing the Bachelor of Fine Arts are required to select a studio concentration in ceramics, fibers, graphic design, illustration, painting, printmaking and drawing, time arts/photography, or sculpture. Students may develop a cross-disciplinary concentration under special circumstances. The department also offers K-12 teacher licensure in art, which will require additional credit hours, and an 18 credit hour minor in art history.

Admission to the Department of Art: All students must first apply for admission to the university, and then submit a portfolio and an application form for admission to the Department of Art. Applications are processed on an ongoing basis. Internal transfer students must have a GPA of 2.0 before submission of materials. Until the application is accepted, students will be considered Pre-Art majors. With some exceptions, art courses are only open to students who have been formally accepted to the Department of Art.

Members of the studio, art history, and art education faculty are recognized professional artists or scholars and active in their fields of specialization. Because of the comprehensive educational backgrounds of faculty, students are encouraged to embrace a variety of conceptual and aesthetic points of view.

The required study of art history offers a key to understanding the evolution of civilization and the development of human creativity. As a discipline, art history encourages appreciation of individual works of art and instills a vivid awareness of the social and historical context in which these works were produced.

The Art program addresses the needs of students working to become exhibiting artists, art teachers, or scholars. It also prepares students for a wide range of career choices in art-related professions. The program is structured upon the following premises:

- Students need an awareness of the common core of historical and theoretical knowledge in the arts.
- Students need a basic level of skill and aesthetic sensitivity in a variety of studio disciplines.
- Students need in-depth knowledge to critically synthesize formal and conceptual aspects of work in a specific area of study.

BFA Portfolio Submission: Admission to the BFA program is selective and based on a portfolio packet, which includes a written statement, 10-12 works, a portfolio list with descriptive text, and a university transcript. BFA reviews are usually conducted during the student's fourth or fifth semester in the Department of Art, while students are simultaneously enrolled in a one-credit BFA portfolio class and the second class in the intended concentration. Each concentration requires 21 credits of coursework at the intermediate and advanced levels.

Students may receive dual BFA concentrations by completing the concentration requirements in two areas. This may require additional units for the completion of graduation requirements.

Courses designated “for non-majors only” cannot be counted toward the total numbers of credits required for the major. Students must receive a grade of C or better in all courses applied to the major.

Art Advising. All Art and Pre-Art majors are assigned an initial advisor. Upon admission to the BFA program, students may change to an advisor in the area of concentration. Students may take advantage of walk-in advising services with the Department of Art Undergraduate Advisor, who may offer help in addition to the individually assigned faculty advisors. Hours of service and advising sheets listing all curriculum requirements are available in the Department office and online at www.art.uncc.edu.

K-12 Art Teacher Licensure. The Department of Art offers a program of art and professional education courses to prepare students for K-12 Teacher Licensure in North Carolina. Students must apply to the Department of Art after having been admitted to the university. Students planning to pursue art teacher licensure must contact the Coordinator of Art Education to obtain appropriate advising. Candidates must apply and be admitted to the Art Teacher Education Program (a separate program with the College of Education) prior to registering for ARTE 4121 (Art Education Methods 1), ARTE 4122 (Art Education Methods 2), EDUC 4290 (Modifying Instruction for Learners with Diverse Needs), and EIST 4100 (Computer Applications in Education). Licensure applications are the responsibility of the student and the Office of Teacher Education Advising and Licensure (TEAL).

Art Education Curriculum (21 credits):

Art Education students must complete Department of Art requirements for either the BA or BFA degree as well as additional State of North Carolina requirements. Students must also take the following courses:

ARTE 4121 Art Education Methods 1 (3)
 ARTE 4122 Art Education Methods 2 (3)
 ARTE 3467 Student Teaching/Seminar: K-12 Fine and Performing Arts: Art (15)

Education Curriculum (15 credits):

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)
 MDSK 3160 Learning and Development: Birth through Adolescence (3)
 SPED 2100 Introduction to Students with Special Needs (3)

Criteria for admission to the Art Teacher Education Program:

1. Overall GPA of at least 2.5 in at least 45 hours.
2. A GPA of 2.75 in both the professional education and art courses.
3. Passing scores on all three parts of the Praxis I: Pre-Professional Skills Tests.
4. A grade of ‘C’ or better in EDUC 2100 (Introduction to Education and Diversity in Schools) and SPED 2100 (Introduction to Students with Special Needs).
5. Recommendation of the Coordinator of Art Education.
6. Submission of goldenrod application form to Office of Teacher Education Advising and Licensure (TEAL).

Criteria for admission to Student Teaching:

1. Required of all candidates by the College of Education and Art Teacher Education.
2. Prior admission to Art Teacher Education.
3. Overall GPA of at least 2.5.
4. A GPA of 2.75 and grades of ‘C’ or better in the professional education and art courses.
5. Completion of all other coursework.
6. Recommendation from the Coordinator of Art Education.
7. Submission of application packet to Office of Field Experiences (OFE).

Scheduling of Art Education Courses, Professional Education courses, and Licensure requirements:

Freshman year: take Praxis 1 during the spring semester.

Sophomore year: take EDUC 2100 and SPED 2100 during the fall semester. Apply to Art Teacher Education program during the spring semester.

Junior year: take EIST 4100 during the fall semester.

Senior year: take ARTE 4121 during the fall semester. Apply for Admission to Student Teaching during the fall semester. Take ARTE 4122 and EDUC 4290 during the spring semester.

5th year (fall only): complete Student Teaching. Take Praxis 2.

Lateral Entry or Post-baccalaureate students (with an earned undergraduate art degree) seeking K-12 Teacher Licensure must pass either Praxis 1 or an approved substitute examination (GRE or Miller’s Analogy) prior to admittance to the Art Teacher Education Program and prior to registering for ARTE 4121 (Art Education Methods 1), ARTE 4122 (Art Education Methods 2), EDUC 4290 (Modifying Instruction for Learners with Diverse Needs), and EIST 4100 (Computer Applications in Education).

BACHELOR OF ARTS (BA)

All students majoring in Art are required to complete courses that satisfy the UNC Charlotte General Education requirements listed earlier in this *Catalog*.

There are two options for the BA in Art degree: (1) a BA in Art with a studio focus (42 credits) and (2) a BA in Art with an art history focus (45 credits).

Studio Focus Requirements:

ACADEMIC COURSES (15 credits)

ARTH 1211 Art History Survey I (3)
 ARTH 1212 Art History Survey II (3)
 ARTH xxxx Art History Elective (3)
 ARTH 3210 Art History Methods (3) **or**
 ARTH 2210 Contemporary Art History (3) **or**
 ARTH 4212 Contemporary Theory & Criticism (3)
 ARTA 4600 Senior Seminar (3) (W,O)

FOUNDATION STUDIO COURSES (12 credits)

Students *should not* go on to the second level of any art class until ALL foundation courses have been met or are taken concurrently.

ARTB 1201 2D Design (3)
 ARTB 1202 3D Design (3)
 ARTB 1203 Drawing I (3)
 ARTB 1206 Concept Studio (3)

BREADTH (6 credits)

Students *should not* take a third class in their discipline until breadth courses have been completed or are taken concurrently.

2D Breadth: one 2000 level course from an area other than the area of focus: drawing, graphic design, illustration, multi media, painting, printmaking, or time arts/photography.

3D Breadth: one 2000 level course from an area other than the area of focus: ceramics, fibers, installation art, metalsmithing/jewelry, or sculpture.

CORE AREA (9 credits)

A minimum of three courses in one discipline, two at the 3000 level, is required. Options are available in the Department of Art office or online at www.art.uncc.edu. Transfer students must take at least six of these hours at UNCC.

BACHELOR OF FINE ARTS (BFA)

All students majoring in Art are required to complete courses that satisfy the UNC Charlotte General Education requirements listed earlier in this *Catalog*.

Students wishing to pursue the BFA in Art must apply for this degree after having completed ARTH 1211 and ARTH 1212 (Art History Surveys I & II), ARTB 1201 (2D Design), ARTB 1202 (3D Design), ARTB 1203 (Drawing I), and the first-level class in the intended concentration: Ceramics Handbuilding or Wheel 1, Fibers 1, Graphic Design 1, Illustration 1, Painting 1, Photo Media 1, Sculpture 1, Silkscreen & Woodcut, or Lithography & Etching.

ARTB 1205 (Figure Drawing 1) and ARTB 1206 (Concept Studio) should be completed or taken concurrently with the second level class in the intended concentration and the BFA Portfolio Review class. BFA portfolio applications will be completed as part of this class.

ART HISTORY COURSES (15 credits)

ARTH 1211 Art History Survey I (3)
 ARTH 1212 Art History Survey II (3)
 ARTH xxxx Art History Elective (3)
 ARTH 2210 Contemporary Art History (3)
 ARTH xxxx Choose an Art History course from the Ancient, Medieval, Renaissance, or Baroque eras (3)

FOUNDATION STUDIO COURSES (15 credits)

Students *should not* go on to the second level of any art class until ALL foundation courses have been met or are taken concurrently.

ARTB 1201 2D Design (3)
 ARTB 1202 3D Design (3)
 ARTB 1203 Drawing I (3)
 ARTB 1205 Figure Drawing I (3)
 ARTB 1206 Concept Studio (3)

INTRODUCTORY STUDIOS (15 credits)

Select five classes. You should choose two courses from Group 1 and two courses from Group 2. The fifth class may come from either group. Up to three classes may be specified by a concentration to meet its requirements.

GROUP 1: Ceramics Handbuilding, Ceramics Wheel 1, Fibers 1, Installation Art, Sculpture 1: Construction, Metalsmithing/Jewelry.

GROUP 2: Drawing 2, Graphic Design Methods, Graphic Design 1, Illustration 1, Electronic Media, Painting 1, Lithography & Etching, Silkscreen & Woodcut, Photo Media 1.

ART ELECTIVE (3 credits)

Choose a 2000 or higher level class in studio, art history, art education, independent study, internship, or arts administration. Students selecting an art history class will automatically earn an art history minor.

ADVANCED COURSES (27 credits)

Studio Art Electives: choose two studio courses at the 3000 or 4000 level. Courses may be recommended by the concentration area.

Concentration Requirements: seven courses at the 3000 and 4000 level will be specified by the concentration area. Requirements are available in the Department of Art office or online at www.art.uncc.edu.

OTHER (5 credits)

ARTA 3201, 3202, 3203 BFA Portfolio Review (1)
 ARTA 4600 Senior Seminar (3) (W,O)
 ARTA 4601 BFA Senior Exhibit (1)

Minor in Art History

A minor in Art History consists of 18 semester hours, including ARTH 1211 (Art History Survey 1), ARTH 1212 (Art History Survey 2), and any four more Art History classes. The student must achieve a GPA of 2.5 or above in the minor. At least six hours must be taken at UNC Charlotte.

Suggested Freshman and Sophomore Schedule for BFA Candidates:

Freshman Year

ARTB 1201 2D Design or ARTB 1202 3D Design.... 3
 ARTB 1203 Drawing I 3
 ARTB 1206 Concept Studio 3
 ARTH 1211 Art History Survey I.....3

ARTB 1201 2D Design or ARTB 1202 3D Design.....3
 ARTB 1205 Figure Drawing I 3

ARTH 1212 Art History Survey II	3
ART_ 2xxx Introductory Studio (1 st 2000 level class in concentration)	3

Sophomore Year

ART_ 2xxx Any Introductory Studio or 1 st 3000 level class in concentration	3
ART_ 2xxx Any Introductory Studio	3
ART_ 2xxx Any Introductory Studio	3
ARTH xxxx 3 rd Art History	3
ART_ 3xxx 1 st or 2 nd 3000-level class in concentration	3
ART_ 2xxx Any Introductory Studio	3
ART 3201, 3202, or 3203 (BFA Portfolio Review Class)	1
ARTH 2210 (Contemporary Art History)	3

A list of required courses for each concentration and Art Teacher Licensure is available in the Department Office or online at www.art.unc.edu. Students planning to become art teachers may follow a different schedule than the above and must consult the Coordinator of Art Education upon entering the University.

Department of Biology

Chairperson: Professor Clemens; *Belk Distinguished Professor:* Bost; *Cone Distinguished Professor:* Oliver; *Professors:* Barden, Hudson, Huet-Hudson, Leamy, Mellichamp, Menhinick, Reynolds, Schneider; *Professors Emeritus:* Edwards, Hildreth, Matthews, Thomas; *Associate Professors:* Hughes, Marriott, McKillop, Ostrowski, Peters, Steck, Zhang; *Associate Professor Emerita:* Langsam; *Assistant Professors:* Anguita, Ringwood, Schrum, Sokolova, Yengo; *Assistant Professor Emeritus:* Bashor; *Lecturers:* Bryska, Gross, Lowder, Somerville, Warner, Wolfe

The biological sciences are important in many areas of human endeavor encompassing wide-ranging career opportunities in medicine and allied health professions, education, environment, research, and industry. The Department of Biology 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 medical/pharmaceutical sales or education; while the B.S. degree provides opportunity for advanced studies in academic or professional programs. The minor in Biology is offered for students who desire some experience in biology as an adjunct to their major.

Biology 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 science, 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. A program in medical technology is offered in cooperation with other institutions.

BACHELOR OF ARTS

A major in Biology leading to the B.A. degree consists of 32 semester hours of biology including: (1) a core sequence of General Biology I (BIOL 2120 + Lab) and General Biology II (BIOL 2130 + Lab), and a grade of C or better is required in the lecture sections of these two courses before one may advance; (2) four area courses: Cell (BIOL 3111 + Lab), Ecology (BIOL 3144), Genetics (BIOL 3166), and Animal or Plant Physiology (BIOL 3272 or 3273); and (3) Senior Seminar (BIOL 4600). The B.A. degree requires a total of five biology laboratories counting the two required introductory labs. Additional requirements are CHEM 1251, 1252, and 2131, with associated labs, three semester hours of mathematics (MATH), and three semester hours of statistics (STAT). At least 12 hours of biology must be taken at UNC Charlotte.

BACHELOR OF SCIENCE

In addition to the 32 hours of biology required for the B.A. degree, a student working toward the B.S. degree is required to take 12 additional hours in biology for a total of 44 hours, two additional biology laboratories for a total of seven, CHEM 2132 with associated laboratory, PHYS 1101, 1102 and associated labs, and three additional hours of mathematics (MATH).

SUGGESTED SCHEDULE: B.A. OR B.S. IN BIOLOGY

Following is the sequence in which required courses should be taken, even if they are not taken during the year indicated:

Freshman year: BIOL 2120 + BIOL 2120L and BIOL 2130 + BIOL 2130L; CHEM 1251 + CHEM 1251L and CHEM 1252 + CHEM 1252L

Sophomore year: CHEM 2131 + CHEM 2131L; BIOL 3111 + BIOL 3111L, BIOL 3144, and BIOL 3166; STAT 1221; for BS CHEM 2132 + CHEM 2132L

Junior year: BIOL 3272 or BIOL 3273, then advanced electives of any number

Senior year: BIOL 4600 and advanced electives of any number

See the department of Biology for a more detailed schedule for the four-year program leading to the B.A. or B.S., including schedules for each of the options.

BIOLOGY MINOR

A minor in Biology requires 18 hours, including the BIOL 2120 and BIOL 2130 sequence or the BIOL 1110 and BIOL 1115 sequence and associated labs (only one of these sequences is allowed), other courses at the 1000 level are acceptable; a total of three laboratory courses; at least one three-hour course (not necessarily with lab) at or above the 3000 level; and a GPA of at least 2.0 in the minor. Students

are responsible for meeting all Biology course prerequisites and co-requisites. At least six hours must be taken at UNC Charlotte.

BACHELOR OF SCIENCE WITH AN OPTION IN CELL BIOLOGY/PHYSIOLOGY

The B.S. in Biology with an option in Cell Biology/Physiology consists of 44 hours. These include the core biology courses, General Biology I (BIOL 2120, BIOL 2120L) and General Biology II (BIOL 2130, BIOL 2130L); the four area courses, Cell (BIOL 3111), Ecology (BIOL 3144), Genetics (BIOL 3166), and Plant or Animal Physiology (BIOL 3272 or 3273); and Senior Seminar (BIOL 4600). In addition physiology lab (BIOL 3272L or BIOL 3273L) must be taken. Three additional laboratories from among the area courses or track electives must also be taken to complete the requirements of the B.S. The track also requires that students choose one course from each of the following areas: (1) **Subcellular*** topics, (2) **Structure and Function***, and (3) **Advanced Physiology***. Consult the Biology Department for a current list of approved courses in these areas. A minimum of nine additional hours should be chosen, in consultation with an advisor from appropriate electives depending upon the student's interests. Students are encouraged to take Investigations in Biology (BIOL 3900) or Honors in Biology (BIOL 4700, BIOL 4701) under the direction of one of the Cell Biology or Physiology faculty. Students are responsible for completing all of the chemistry, math, and physics courses required for a B.S. in Biology.

General Biology I (BIOL 2120, BIOL 2120L)	4
General Biology II (BIOL 2130, BIOL 2130L)	4
Cell Biology (BIOL 3111)	3
Ecology (BIOL 3144)	3
Genetics (BIOL 3166)	3
Physiology (BIOL 3272, BIOL 3272L) or (BIOL 3272, BIOL 3273L)	4
Senior Seminar (BIOL 4600)	1
Subcellular topic	3
Structure and Function	3
Advanced Physiology	3
	32 hours

Students must choose one course each from each of the following sub areas.

1. ***Subcellular topics:** Cell Physiology (BIOL 4171), Molecular Biology (BIOL 4199), biochemistry (CHEM 4165), Advanced Cell Biology (BIOL 4000), DNA Profiling (BIOL 4000), Biotechnology at the Workbench (BIOL 4000), Cellular Neuroscience (BIOL 3271).
2. ***Structure and Function:** Comparative Vertebrate Anatomy (BIOL 4293), Medical Genetics (BIOL 4167), Systems Neuroscience (BIOL 3274), or Microbiology (BIOL 4250)
3. ***Advanced Physiology:** Immunology (BIOL 4251), Microbial Physiology and Metabolism (BIOL 4257), Endocrinology (BIOL 4277), Neurobiology (BIOL 4279), or Cardiovascular Physiology (BIOL 4000).

BACHELOR OF SCIENCE WITH AN OPTION IN ECOLOGY/ENVIRONMENTAL BIOLOGY

A B.S. degree in Biology with an option in Ecology/Environmental Biology consists of 44 hours of biology including all required courses for a B.S. degree in Biology plus Ecology Laboratory (BIOL 3144L), Biometry (BIOL 4121), and Environmental Problems (BIOL 4000). Each student must take at least four courses in one of the following sub-areas of environmental biology. Students are also recommended to take ESCI 1101 and Investigations in Biology (BIOL 3900) under the direction of one of the environmental biology faculty. Students are responsible for all chemistry, mathematics, and physics requirements for a B.S. in Biology.

1. **Plant Ecology:** Plant Systematics (BIOL 4221) or Field Botany (BIOL 3229), Dendrology (BIOL 4229), Microbiology (BIOL 4250), Advanced Ecology (4144), Field Entomology (BIOL 4000), Horticulture (BIOL 3202), Evolution (BIOL 4111), Soil Science (ESCI 3210).
2. **Animal Ecology:** Invertebrate Zoology (BIOL 3231), Vertebrate Zoology (BIOL 3233) or Mammalogy (BIOL 4235), Animal Behavior (BIOL 4243), Wildlife Biology (BIOL 4234), Microbiology (BIOL 4250), Advanced Ecology (BIOL 4144), Field Entomology (BIOL 4000), Evolution (BIOL 4111).
3. **Environmental Assessment:** Plant Systematics (BIOL 4221) or Field Botany (BIOL 3229), Environmental Biotechnology (BIOL 4000), Microbiology (BIOL 4250), Wildlife Biology (BIOL 4234), Limnology and Oceanography (BIOL 4149), Dendrology (BIOL 4229), Advanced Ecology (BIOL 4144), Soil Science (ESCI 3210), Hydrological Processes (ESCI 4140) or Fluvial Processes (ESCI 4155) or Ecotoxicology (BIOL 4000).
4. **Aquatic Ecology:** Limnology and Oceanography (BIOL 4149), Invertebrate Zoology (BIOL 3231), Microbiology (BIOL 4250), Advanced Ecology (BIOL 4144), Hydrological Processes (ESCI 4140) or Fluvial Processes (ESCI 4155), Quantitative Analysis (CHEM 3111), Ecotoxicology (BIOL 4000).
5. **General:** Course program to be arranged in consultation with the Ecology/Environmental Biology Faculty.

BACHELOR OF SCIENCE WITH AN OPTION IN MICROBIOLOGY

A major in Biology leading to a B.S. degree with an option in microbiology consists of 46 hours of biology including: [1] a core sequence of General Biology I (BIOL 2120, BIOL 2120L) and General Biology II (BIOL 2130 and BIOL 2130L); [2] four area courses, Cell (BIOL 3111), Ecology (BIOL 3144), Genetics (BIOL 3166), and Plant or Animal Physiology (BIOL 3272, BIOL 3272L, or BIOL 3273, BIOL 3273L); [3] Senior Seminar (BIOL 4600); [4] a core of microbiology courses: Microbiology (BIOL 4250, BIOL 4250L), Microbial Physiology and Metabolism (BIOL 4257), Immunology (BIOL 4251), Pathogenic Bacteriology (BIOL 4256), and either Bacterial Genetics (BIOL 4255) or Molecular Biology (BIOL 4199); [5] six credit hours from the following list of electives (at least one of which must include a laboratory): The Fungi (BIOL 4233), Virology (BIOL 4259), Parasitology (BIOL 4233), Advanced Immunology (BIOL 4291), Bacterial Genetics or Molecular Biology if not

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taken as part of the “core”, Recombinant DNA Techniques (BIOL 4168), Host-Parasite Interactions (BIOL 4000), Immunological Methods (BIOL 4000), Biotechnology at the Workbench (BIOL 4000), Honors Research (Microbiology) (BIOL 4700, BIOL 4701), and Undergraduate Research (Microbiology) (BIOL 3900); and [6] CHEM 2132 with associated lab, PHYS 1101, PHYS 1102 and associated labs, and nine hours of mathematics including STAT 1221.

BACHELOR OF ARTS WITH AN OPTION IN MEDICAL TECHNOLOGY

Upon satisfactory completion of training at Wake Forest University Baptist Medical Center School of Medical Technology, a student may receive a B.A. degree in Biology from UNC Charlotte. (It is possible to obtain a B.S. degree by careful planning with the advisor, although a B.S. degree will typically require a longer period of time than will the B.A. degree). The student must take General Biology I (BIOL 2120, BIOL 2120L), General Biology II (BIOL 2130, BIOL 2130L), Genetics (BIOL 3166), Microbiology (BIOL 4250, BIOL 4250L), Immunology (BIOL 4251), Animal Physiology (BIOL 3273), Seminar (BIOL 4600), and 16 hours of chemistry (CHEM 1251, CHEM 1251L, CHEM 1252, CHEM 1252L, CHEM 2131, CHEM 2131L, and chemistry elective); have a total of 24 hours of biology and a total of four laboratories in biology at UNC Charlotte; and have a 2.0 grade point average overall and in the major at the end of the junior year. The student must have a total of 90 hours including 24 hours of biology at UNC Charlotte; the remaining 30 hours and eight hours of biology will be accepted from the School of Medical Technology. The final 30 hours counted toward the degree, and the last eight hours counted toward the major prior to entering a School of Medical Technology must be taken at UNC Charlotte. Gaining admission to the School of Medical Technology is the responsibility of the student. Additional information is available from the Department of Biology.

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.

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 Biology Department.

Admission. Students are invited to participate in the program during their junior year by the Department Honors

Committee. To qualify, a student must have completed 60 semester 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 3.4 overall grade point average. An Honors advisor and a supervisory committee are appointed for each student.

Courses. To graduate with Honors, a student must complete BIOL 4601 (Honors Seminar), BIOL 4700 (Honors Research I) and BIOL 4701 (Honors Research II) with a B or better in each of the three courses.

Certification Requirements. A cumulative grade point average of 3.4 or greater must be maintained. An Honors thesis is required and the student must present the results of their project in an appropriate forum.

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 work experience or to combine academic study and work during the same semester. The work experience is arranged by the University Career Center and must be approved by the Department of Biology. 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.

Department of Chemistry

Chairperson: Professor Donovan-Merkert; *Charles H. Stone Professor:* DuBois; *Celanese Acetate Distinguished Professor:* Gonsalves; *Professors:* Crosthwaite, Ogle, Risley; *Associate Professors:* Brown, Cooper, Jones, Poler, Rabinovich, Sisk; *Assistant Professors:* El-Kouedi, Hovick, Krueger, Schmedake; *Lecturer and Assistant to the Chair:* Dammann; *Lecturers:* Carlin, Merkert, Murphy, Striplin. *Charles H. Stone Professor Emeritus:* Burson; *Professors Emeritus:* Allen, Bush, Daignault, Gibson, Koppers, Mattingly, Walsh.

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.

The Chemistry Department 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, teaching, or professional

studies in areas such as medicine, dentistry, veterinary medicine, and optometry. "Suggested Schedules" of required courses for the B.S., B.A. and B.S./M.S. degree programs are available on the Chemistry Department web page at www.chem.uncc.edu. A minimum chemistry GPA of 2.0 is required in the B.S. and B.A. degree programs.

The suggested schedules are meant to serve as guidelines. Students are urged to consult with their academic advisors every semester. Students should also 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.

Programs leading to careers in medical technology, pharmacy, and chemical engineering are available in cooperation with other institutions.

BACHELOR OF SCIENCE

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.

A major in Chemistry leading to the ACS-certified B.S. degree consists of a minimum of 46 semester hours of chemistry, including CHEM 1251, 1251L, 1252, 1252L (or 1253L), 2131, 2132, 2131L, 2132L (or 2136L), 3111, 3141, 3142, 3141L, 3142L, 3695, 4111, 4121, 4133, 4165, one semester of 4695, one semester of 4696, and two semesters of 4900. Students wishing to pursue the non-ACS-certified B.S. degree (minimum of 45 semester hours in chemistry) replace CHEM 4165 with two credits of 4000-level chemistry courses *that must be approved by the Chemistry Department*. Related work in mathematics and physics must include MATH 1241, 1242, PHYS 2101, 2102, 2101L, and 2102L and two additional math courses: MATH 2241, 2242, 2164, 2171, STAT 3128, or a Department-approved math course.

All students who earn a degree within the College of Arts and Sciences are required to demonstrate proficiency in the foreign language of their choice through the 1202 level. Proficiency in a foreign language 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 Arts and Sciences Fall 2005 and beyond. Students enrolled in the University prior to Fall 2005 but not enrolled in a degree program in the College of Arts and Sciences Fall 2005 and beyond will be subject to this requirement.

Although all students in the College of Arts and 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. All students in the College of Arts and 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. *The B.S. degree in chemistry does not require proficiency in a foreign language at the intermediate level.* However, all students majoring in the B.S. program are required to satisfy the UNC Charlotte general education requirements.

It should also be noted that some graduate programs require a proficiency in a foreign language. *Graduate programs in chemistry typically do not require proficiency in a foreign language.*

Required Courses, Suggested Schedule: B.S. Degree in Chemistry*

Freshman Year

CHEM	1251**	3
CHEM	1251L	1
ENGL	1101	3
MATH	1241***	3
LBST	1101, 1102, 1103, 1104 or 1105	3
FORL	1101****	3

CHEM	1252**	3
CHEM	1252L	1
ENGL	1102	3
MATH	1242	3
LBST	2101	3
FORL	1102	3

Sophomore Year *****

CHEM	2131	3
CHEM	2131L	1
Select two: MATH 2241, 2242, 2164, 2171, STAT 3128, or a Department-approved math course		6
PHYS	2101	3
PHYS	2101L	1
LBST	2102	3

CHEM	2132	3
CHEM	2132L	1
PHYS	2102	3
PHYS	2102L	1
LBST	2211, 2212, 2213, 2214 or 2215	3
Social Science (Gen Ed)		3

Junior Year

CHEM	3111*****	4
CHEM	3141	3
CHEM	3141L	1
Electives		6

CHEM	3142	3
CHEM	3142L	1
CHEM	3695 (W)	1
CHEM	4111	4
Electives		6

Senior Year

CHEM	4121	4
CHEM	4695 (W, O)	1
CHEM	4165 (or 4xxx)*****	3 (or 2)
CHEM	4900	1 (or more)
Electives		6

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CHEM 4133.....	2
CHEM 4900.....	1 (or more)
CHEM 4696 (W, O).....	1
Writing Intensive.....	3
Electives.....	6

*The suggested schedule is meant to serve as a guideline. Students are urged to consult with their academic advisors every semester.

**Students can receive credit by examination for CHEM 1251 & 1252.

***The initial mathematics course is based on placement criteria established by the Mathematics Department.

****FORL 1100 may also need to be taken and can be taken as a replacement for an elective.

*****CHEM 3111 may be taken in the sophomore year.

*****The B.S. program is approved by the Committee on Professional Training of the American Chemical Society if Biochemistry, CHEM 4165, is taken.

BACHELOR OF SCIENCE WITH OPTION IN BIOCHEMISTRY

Minimum of 44 semester hours of chemistry, including CHEM 1251, 1252, 1251L, 1252L (or 1253L), 2131, 2132, 2131L, 2132L (or 2136L), 3111, 3141, 3142, 3141L, 3142L, 3695, 4165, 4166, 4165L, 4111 or 4171, one semester of 4695, one semester of 4696 and two semesters of 4900 (or BIOL 3900 with special permission from the Department of Chemistry) culminating in a comprehensive written report; related work in mathematics, physics, and biology must include MATH 1241, 1242, PHYS 2101, 2102, 2101L, and 2102L, and BIOL 2120, 2130 and either 3166, 3273, 4171, or 4199, and two additional math courses: MATH 2241, 2242, 2164, 2171, STAT 3128, or a Department-approved math course. The B.S. degree will require the completion of a minimum of 122 semester hours of credit.

All students who earn a degree within the College of Arts and Sciences are required to demonstrate proficiency in the foreign language of their choice through the 1202 level. Proficiency in a foreign language 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 Arts and Sciences Fall 2005 and beyond. Students enrolled in the University prior to Fall 2005 but not enrolled in a degree program in the College of Arts and Sciences Fall 2005 and beyond will be subject to this requirement.

Although all students in the College of Arts and 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. All students in the College of Arts and 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. *The B.S. degree in chemistry does not require proficiency in a foreign language at the*

intermediate level. However, all students majoring in the B.S. program (even those operating under the old general degree requirements) are required to satisfy the UNC Charlotte general degree language requirements.

It should also be noted that some graduate programs require a proficiency in a foreign language. *Graduate programs in chemistry or biochemistry typically do not require proficiency in a foreign language.*

Required Courses, Suggested Schedule: B.S. Degree in Chemistry/Biochemistry

Freshman Year*

CHEM 1251**.....	3
CHEM 1251L.....	1
ENGL 1101.....	3
MATH 1242***.....	3
LBST 1101, 1102, 1103, 1104 or 1105.....	3
FORL 1101****.....	3

CHEM 1252**.....	3
CHEM 1252L.....	1
ENGL 1102.....	3
MATH 1242.....	3
LBST 2101.....	3
FORL 1102.....	3

Sophomore Year*****

CHEM 2131.....	3
CHEM 2131L.....	1
Select two: MATH 2241, 2242, 2164, 2171, STAT 3128, or a Department-approved math course.....	6
PHYS 2101.....	3
PHYS 2101L.....	1
LBST 2102.....	3

CHEM 2132.....	3
CHEM 2132L.....	1
PHYS 2102.....	3
PHYS 2102L.....	1
BIOL 2120.....	3
LBST 2211, 2212, 2213, 2214 or 2215.....	3

Junior Year

CHEM 3111*****.....	4
CHEM 4165.....	3
CHEM 4165L.....	1
Writing Intensive.....	3
Electives.....	6

CHEM 3695 (W).....	1
CHEM 4166.....	3
BIOL 2130.....	3
Social Science (Gen Ed).....	3
Electives.....	6

Senior Year

CHEM 3141.....	3
CHEM 3141L.....	1
CHEM 4695 (W,O).....	1
CHEM 4900 or BIOL 3900*****.....	1
BIOL 3166, 3273, 4171, or 4199.....	3
Electives.....	6
CHEM 3142.....	3
CHEM 3142L.....	1

CHEM 4900.....	1
CHEM 4696 (W,O).....	1
Electives.....	3
CHEM 4171 or 4111.....	4

*The B.S. program is approved by the Committee on Professional Training of the American Chemical Society if CHEM 4121 is also taken. The suggested schedule is meant to serve as a guideline. Students are urged to consult with their academic advisors every semester.

**Students can receive credit by examination for CHEM 1251 & 1252.

***The initial mathematics course is based on placement criteria established by the Mathematics Department.

****FORL 1100 may also need to be taken and can be taken as a replacement for an elective.

*****CHEM 3111 may be taken in the sophomore year.

*****BIOL 3900 requires special permission from the Chemistry Department.

BACHELOR OF ARTS

A major in Chemistry leading to the B.A. degree consists of a minimum of 32 semester hours of chemistry and must include the following core courses: CHEM 1251, 1251L, 1252, 1252L, 2125, 2131, 2131L, 2132, 2132L, 2141, 3111, 3695, and two semesters of 4695. Related work must include MATH 1241, 1242, and a complete sequence of physics courses selected from one of the following options: (A) PHYS 1101, 1101L, 1102, 1102L; (B) PHYS 2101, 2101L, 2102, 2102L; or (C) PHYS 1102, 1102L, 2101, 2101L. The remaining 3 chemistry elective hours may be selected from CHEM 3112, 3113, 3141, 3141L, 3142, 3142L, 4111, 4121, 4133, 4134, 4135, 4165, 4165L, 4166, 4167, 4171, 4175, and 4200. 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.

Preprofessional. 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 biology course at the 3000 or 4000 level is recommended.

Chemistry. Students planning to pursue employment in chemical industry or other careers requiring a background in chemistry should choose CHEM 3113 (or 4111) as a chemistry elective.

B.A. Degree: Suggested Schedule* of Required Courses for Students Planning to Attend Professional School or Other Technical Careers Requiring a Background in Chemistry:

Freshman Year

CHEM 1251 **.....	3
CHEM 1251L.....	1
ENGL 1101.....	3
MATH 1241 ***.....	3
LBST 1101, 1102, 1103, 1104 or 1105.....	3
FORL 1201.....	4

CHEM 1252 **.....	3
CHEM 1252L.....	1
ENGL 1102.....	3
MATH 1242.....	3
LBST 2101.....	3
FORL 1202.....	4

Sophomore Year

CHEM 2131.....	3
CHEM 2131L.....	1
LBST 2102.....	3
FORL 2xxx.....	3
BIOL 2120 ****.....	3
BIOL 2120L ****.....	1

CHEM 2132.....	3
CHEM 2132L.....	1
LBST 2211, 2212, 2213, 2214 or 2215.....	3
Writing Intensive (W).....	3
BIOL 2130 ****.....	3
BIOL 2130L ****.....	1

Junior Year

CHEM 3111 *****.....	4
PHYS 1101.....	3
PHYS 1101L.....	1
Electives.....	7

CHEM 2141.....	3
PHYS 1102.....	3
PHYS 1102L.....	1
CHEM 3695 (W).....	1
Electives.....	7

Senior Year

CHEM 4695 (W,O).....	1
Chemistry Elective.....	3
Electives.....	9

CHEM 2125.....	3
CHEM 4695 (W,O).....	1
Social Science.....	3
Electives.....	9

*The suggested schedule is meant to serve as a guideline. Students are urged to consult with their academic advisors every semester.

**Students can receive credit by examination for CHEM 1251 & 1252.

***The initial mathematics course is based on placement criteria established by the Department of Mathematics and Statistics.

****For Medical School and Allied Health Professional Schools.

*****CHEM 3111 may be taken in the sophomore year.

Teacher Licensure. To meet North Carolina requirements for secondary (grades 9-12) teaching licensure in Chemistry, students must complete at least 33 hours in chemistry including: CHEM 1251, 1251L, 1252, 1252L, 2131, 2131L, 2132, 2132L, 2141, 2125, 3111, 3695, 4165, 4165L, and two semesters of 4695. Students must also complete 12 hours of physics (including PHYS 1101, 1101L, 1102, 1102L, and a physics elective), six hours of calculus (MATH 1241 and 1242), and four hours of a biology or earth science course with laboratory (BIOL 1110 + 1110L or GEOL 1200 + 1200L). Students seeking teaching licensure should consult a co-advisor in the Department of Middle, Secondary, and K-12 Education in the College of Education for detailed planning of their professional education coursework. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

Required Courses, Suggested Schedule: B.A. Degree For Students Seeking Secondary Teaching Licensure*

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Freshman Year

CHEM	1251**	3
CHEM	1251L	1
ENGL	1101	3
MATH	1241***	3
LBST	1101, 1102, 1103, 1104 or 1105	3
FORL	1101****	3

CHEM	1252**	3
CHEM	1252L	1
ENGL	1102	3
MATH	1242	3
LBST	2101	3
FORL	1102	3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
PHYS	1101	3
PHYS	1101L	1
EDUC	2100	3
SPED	2100	2
LBST	2102	3

CHEM	2132	3
CHEM	2132L	1
CHEM	2125	3
PHYS	1102	3
PHYS	1102L	1
SECD	2140	3
LBST	2211, 2212, 2213, 2214 or 2215	3

Junior Year

CHEM	3111	4
FORL	2xxx	3
SECD	3141	3
SECD	3150	3
Physics Elective		4

BIOL	1110 (or GEOL 1200)	3
BIOL	1110L (or GEOL 1200L)	1
CHEM	2141	3
Social Science (Gen Ed)		3
READ	3255 (W)	3
SECD	3151	3
CHEM	3695 (W)	1

Senior Year

CHEM	4165	3
CHEM	4165L	1
CHEM	4695 (W,O)	1
SECD	3142	2
MDSK	3251	3
SPED	3290	2
HPKD	3152	2

SECD	3441	15
CHEM	4695 (W,O)	1

*The suggested schedule is meant to serve as a guideline. Students are urged to consult with their academic advisors every semester.

**Students can receive credit by examination for CHEM 1251 & 1252.

***The initial mathematics course is based on placement criteria established by the Department of Mathematics and Statistics.

****FORL 1100 may also need to be taken and can be taken as a replacement for an elective.

BACHELOR OF ARTS WITH AN OPTION IN MEDICAL TECHNOLOGY

3+1 Program: A student majoring in Chemistry may complete the departmental requirements for the B.A. degree in three years. Upon satisfactory completion of training in medical technology at Wake Forest University Baptist Medical Center School of Medical Technology, the student may receive a B.A. degree in Chemistry from UNC Charlotte. Gaining admission to an approved school of medical technology is the responsibility of the student. A maximum of 30 hours will be accepted from the school of medical technology. Four of these hours will apply toward the requirements for the major in Chemistry. The student must have at least a 2.0 grade point average, overall and in the major, at the end of the junior year. The final 30 hours counted toward the degree and the last 12 hours counted toward the major prior to entering a school of medical technology must be taken at UNC Charlotte. The student may obtain information from the departmental advisor.

4+1 Program: Carolinas College of Health Sciences now accepts students, who have earned a 4-year degree and have met prerequisites for entry into the medical technology program. The 4+1 option is available for students at any certified medical technology school. Additional information is available from the departmental advisor.

Required Courses, Suggested Schedule: B.A. Degree, Medical Technology Option, 3+1 Program*

Freshman Year

CHEM	1251**	3
CHEM	1251L	1
ENGL	1101	3
MATH	1103***	3
BIOL	1233	3
BIOL	1233L	1
LBST	1101, 1102, 1103, 1104 or 1105	3

CHEM	1252**	3
CHEM	1252L	1
ENGL	1102	3
MATH	1241	3
LBST	2101	3

Sophomore Year

CHEM	2131	3
CHEM	2131L	1
MATH	1242	3
PHYS	1101	3
PHYS	1101L	1
LBST	2102	3
FORL	1101****	3

CHEM	2132	3
CHEM	2132L	1
FORL	1102	3
PHYS	1102	3
PHYS	1102L	1
Writing Intensive (W)		6

Junior Year

CHEM	3111	4
BIOL	4250	3
BIOL	4250L	1

Social Science (Gen Ed)	3
FORL 2xxx	3
CHEM 3112 (or CHEM 3113)	4
BIOL 3166	3
BIOL 3166L	1
BIOL 4251	3
BIOL 4251L	1
LBST 2211, 2212, 2213, 2214 or 2215	3

Minimum 90 semester hours required for the 3+1 program.

Senior Year is completed at an approved school of medical technology affiliated with UNC Charlotte in the 3+1 program.

**The suggested schedule is meant to serve as a guideline. Students are urged to consult with their academic advisors every semester.*

***Students can receive credit by examination for CHEM 1251 & 1252.*

****The initial mathematics course is based on placement criteria established by the Department of Mathematics and Statistics.*

*****FORL 1100 may also need to be taken and can be taken as a replacement for an elective.*

MINOR IN CHEMISTRY

A minor in Chemistry consists of 23 semester hours of chemistry including CHEM 1251, 1251L, 1252, 1252L, 2131, 2131L, 2132, 2132L, either 3111 or 4171, and three additional semester hours at the 2000 level or above. A minimum GPA of 2.0 in the minor is required. Credit toward the 23 hour total will not be given for either CHEM 4695 or 4900. Special topics courses such as CHEM 3090 and CHEM 5090 may be included with prior departmental approval.

HONORS PROGRAM IN CHEMISTRY

This program is intended primarily for chemistry majors. It is a research-oriented program. Details are available from the Chemistry Department.

Admission. Consideration for admission to the program may be initiated by the student or by any faculty member. The Honors Committee of the Chemistry Department will formally approve admission. The student will formally enter the Honors Program at the beginning or halfway through his/her junior year.

Courses. Independent research and seminars.

Certification Requirements. To obtain a degree with Honors in Chemistry, a student must successfully complete at least three hours of independent research at the Honors level, one semester of the senior seminar at the Honors level, and prepare and successfully defend an Honors thesis based on research.

COOPERATIVE EDUCATION EXPERIENCE

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 work assignments 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.

Accelerated early-entry into the Chemistry M.S. Program

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 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.

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. Students should consult with the Graduate Coordinator about their eligibility for this program and to discuss requirements for selection of a research advisor during their junior year.

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 Graduate Coordinator about their eligibility for this program and to discuss requirements for selection of a research advisor (typically done in the second semester of their junior year).

Required Courses, Suggested Schedule: B.S. - M.S. Degrees*

Freshman Year	
CHEM 1251**	3
CHEM 1251L	1
ENGL 1101	3
MATH 1241***	3
LBST 1101, 1102, 1103, 1104 or 1105	3
FORL 1101****	3
CHEM 1252**	3
CHEM 1252L	1
ENGL 1102	3
MATH 1242***	3
LBST 2101	3
FORL 1102	3

Sophomore Year*****

CHEM	2131	3
CHEM	2131L	1
<u>Select two:</u> MATH 2241, 2242, 2164, 2171, STAT 3128, or a Department-approved math course ...		
		6
PHYS	2101	3
PHYS	2101L	1
LBST	2102	3
CHEM	2132	3
CHEM	2132L	1
PHYS	2102	3
PHYS	2102L	1
LBST	2211, 2212, 2213, 2214 or 2215	3
Social Science (Gen Ed)		3

Junior Year

(Consider joining a research group as soon as possible by taking at least one credit hour/semester.)

CHEM	3111*****	4
CHEM	3141	3
CHEM	3141L	1
Writing Intensive (W)		3
Elective		3
CHEM	4900	1

See the Graduate Coordinator for advising.

CHEM	3695 (W)	1
CHEM	3142	3
CHEM	3142L	1
CHEM	4111	4
Electives		6
CHEM	4900	1

Senior Year

(Apply to Graduate School for accelerated early-entry to Chemistry MS by November 1st.)

CHEM	4121	4
CHEM	4695 (W, O)	1
CHEM	4900	2
Electives		9

CHEM	5133	2
CHEM	5165 (or 5xxx)	3 (or 2)
CHEM	4900	1
CHEM	6900	1
CHEM	4696 (W, O)	1
Electives		9

(Any combination of 5000 level courses replacing 4000 level courses will work.)

Fifth Year

First Summer Session

CHEM	6900	5

Second Summer Session

CHEM	6900	5

Fall

CHEM	6900	4
CHEM	6682	1
CHEM	6xxx	3

Spring

CHEM	6900	4
CHEM	6682	1
CHEM	6xxx	3

*The B.S. degree program is approved by the Committee on Professional Training of the American Chemical Society if Biochemistry is taken. The suggested schedule is meant to serve as a guideline. Students are urged to consult with their academic advisors every semester.

**Students can receive credit by examination for CHEM 1251 and 1252.

***The initial mathematics course is based on placement criteria established by the Department of Mathematics and Statistics.

****FORL 1100 may also need to be taken and can be taken as a replacement for an elective.

*****CHEM 3111 may be taken in the sophomore year.

Department of Communication Studies

Chairperson: R. W. Leeman; Professor: Hill; Associate Professors: Crane, DeSanto, Freitag; Assistant Professors: Davis, Duthler, Gallardo, Grano, Long, Scott; Lecturers: Burton, Coker, Hanson, Kilby, Kuntzman, C.B. Leeman, Spainhour

The Communication Studies program offers training in the practice and theory of communication across a variety of contexts. Among these are public communication, interpersonal communication, small group communication, organizational communication, public relations, and mass communication. In addition, students examine specific types of communication such as argumentation, debate, and persuasion.

BACHELOR OF ARTS

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, and no grade less than C in COMM 1101 or its equivalent and COMM 2100 or its equivalent. 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 no grade less than a C in COMM 1101 or its equivalent, and COMM 2100 or its equivalent.

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 higher, and successful (grade of C or better) completion of COMM 1101 and COMM 2100. Students matriculated at UNC Charlotte and planning to change to or declare Pre-Communications Studies as their major must have an overall GPA of at least 2.0.

Degree Requirements. The program leading to the Bachelor of Arts degree in Communication Studies is a 120 semester hour program, including 54 hours in CORE, concentration, and work requirements in the major, and 32-53 hours in General Education requirements for the baccalaureate degree.

Communication Studies majors must also complete either a 2000-level course in a foreign language course that uses the Latin Alphabet (e.g., French, German, Italian, Portuguese, Spanish) OR a 1202-level course in a language that is not written in the Latin Alphabet (e.g., Arabic, Chinese, Greek, Japanese, Russian). Intermediate American Sign Language is accepted. Non-native English speakers may complete the foreign language requirement by passing ENGL 1101 and ENGL 1102 or the equivalent.

Core Requirements (24 hours)

All students complete 24 hours of CORE requirements designed to provide a thorough understanding of fundamental communication processes. The CORE requirements are structured into four major categories:

General Theory/Skills (12 hours)

COMM 1101 Public Speaking (3)
COMM 2100 Intro. to Communication Theory (3)
COMM 2101 Introduction to Rhetorical Theory (3)
COMM 3101 Persuasion (3)

Research Methodology (6 hours)

STAT 1222 Introduction to Statistics (3)
COMM 3100 Communication Research Methods (3)

Macro-Context (3 hours)

COMM 3120 Communication & Mass Media (3) **or**
COMM 3130 Communication & Public Advocacy (3) **or**
COMM 3141 Organizational Communication (3)

Micro-Context (3 hours)

COMM 2103 Argumentation & Debate (3) **or**
COMM 2105 Small Group Communication (3) **or**
COMM 2107 Interpersonal Communication (3)

Concentration Requirements (12 -21hours)

Students must also complete 12-21 hours of course work in a specific concentration of study. Courses that are required within a particular concentration or used as electives within the concentration cannot simultaneously be used to fulfill CORE requirements. The concentrations are designed to provide students with the opportunity to pursue more extensive study in the communication context most relevant to their professional and social goals. Four concentrations of study are offered:

Health Communication (21 hours)

The Health Communication concentration is designed for students interested in studying the relationship between communication and the quality of health care received by the patients. Emphasis will be placed on the promotion and maintenance of health, the prevention and treatment of illness, and the improvement of the health care system through effective communication.

Students choosing this concentration complete the following courses:

COMM 2107 Interpersonal Communication (3)
COMM 3141 Organizational Communication (3)
COMM 3115 Health Communication (3)
COMM 4410 Communication Internship (3)

Students select nine hours from the following:

ANTH 3124 Food, Nutrition and Culture
ANTH 3122 Culture, Health and Disease
NURS/GRNT 3115 Health and the Aging Process
HLTH 2101 Healthy Lifestyles
KNES 3260 Nutrition and Health Fitness
NURS 3104 Nutrition in Health and Illness
NURS/WMST 4191 Women's Health Issues
NURS 4090 Topics in Nursing*
RELS/PHIL 3201 Meaning of Death
PHIL 3228 Healthcare Ethics
PSYC 2160 Introduction to Health Psychology
PSYC 3130 Social Psychology
SOCY 4130 Sociology of Health and Illness
SOCY 4168 Sociology of Mental Health and Illness
COMM 3050 Topics in Communication*

***with approval of advisor**

Mass Media (12 hours)

The Mass Media concentration is designed for students interested in the development and 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.

Students choosing this concentration complete the following courses:

COMM 3120 Communication and Mass Media (3)
COMM 4101 Media and the Law (3)

Students will complete six hours selected from the following courses:

ARTA 2219 History of Photography (3)
COMM 2120 Black Images in the Media (3)
COMM 3121 Mass Communication and Society (3)
COMM 3050 Topics in Communication (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)
FORL 3160 European Cinema (3)
FREN 4050 Topics in French Film (3)
GERM 3160 Survey of German Films (3)
HIST 3010 American History & Culture through Film (3)
JOUR 2160 Introduction to Journalism (3)
JOUR 3160 News Writing (3)
JOUR 3161 News Editing (3)
POLS 3104 Mass Media and Government (3)
POLS 3107 Political Influence of the Media (3)
RELS 3212 Film and Identity (3)
SOCY 2112 Popular Culture (3)

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SPAN 4050 Topics in Film of Peninsular Spain (3)
SPAN 4050 Topics in Latin American Film (3)
* with approval of advisor

Organizational Communication (12 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.

All students choosing this concentration complete the following courses:

COMM 3141 Organizational Communication (3)
COMM 4141 Advanced Organizational Communication (3)

Students select three hours from the following:

COMM 2105 Small Group Communication (3)
COMM 2107 Interpersonal Communication (3)

Students select three hours from the following:

AAAS 2201 Introduction to Human Relations (3)
ANTH 4120 Intercultural Communication (3)
COMM 3050 Topics in Communication (3)*
COMM 3880 Independent Study (1-3)*
COMM 4410 Professional Internship (3)*
ENGL 2116 Technical Communication (3)
MGMT 3160 Business Communication (3)
PHIL 2175 Professional Ethics (3)
PSYC 2171 Introduction to Industrial/Organizational Psychology (3)
PSYC 3114 Motivation (3)
SOCY 4112 Sociology of Work (3)
SOCY 4115 Sociology of Corporations (3)

* with approval of advisor

Communication and Public Advocacy (12 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.

All students choosing this concentration complete the following courses:

COMM 2102 Advanced Public Speaking (3)
COMM 2103 Argumentation & Debate (3)
COMM 3130 Communication & Public Advocacy (3)

Students select three hours from the following:

COMM 3050 Topics in Communication (3)*
COMM 3131 African-American Oratory (3)
COMM 3403 Debate Practicum (2)
(May be repeated but no more than 3 hours will apply to meeting this elective requirement.)
COMM 3880 Independent Study (1-3)*

COMM 4410 Communication Internship (3)*
ENGL 4165 Language and Culture (3)
POLS 3104 Mass Media and Politics (3)
POLS 3110 North Carolina Student Legislature (3)
POLS 3163 Model United Nations (3)

* with approval of advisor

Public Relations (21 hours)

The Public Relations concentration is designed to provide students with a general background in public relations. Students examine both the theory and practice of public relations.

Students choosing this concentration complete the following courses:

JOUR 2160 Introduction to Journalism (3)
COMM 2145 Principles of Public Relations (3)
COMM 3245 Public Relations Writing (3)
COMM 4145 Communication Campaigns (3)
COMM 4410 Professional Internship (3)

Students select six hours from the following:

ANTH 4120 Intercultural Communication (3)
COMM 2102 Advanced Public Speaking (3)
COMM 3050 Topics in Communication Studies (3)*
COMM 3141 Organizational Communication (3)
COMM 3880 Independent Study (3)*
COMM 4101 Media and the Law (3)
COMM 4141 Advanced Organization Communication (3)
COMM 4147 International Public Relations (3)
COMM 4410 Professional Internship (3)*
ENGL 2116 Technical Communication (3)
JOUR 3160 News Writing (3)
JOUR 3161 News Editing (3)
JOUR 3162 Feature Writing (3)

* with approval of advisor

Related Course Work (9-18 hours)

All students in the Mass Media, Organizational Communication, and Public Advocacy tracks must complete 18 hours of related course work excluding any courses applied to Core Requirements or Track requirements. Students in the Public Relations and Health Communication tracks must complete nine hours of related course work excluding any courses applied to Core Requirements or requirements within that track. All related course work must be approved by the student's advisor. An approved second major or a minor may be used to satisfy this requirement.

CERTIFICATE IN INTERNATIONAL PUBLIC RELATIONS

Students electing the certificate in International Public Relations must be enrolled as majors in the Public Relations track. In addition to completing the standard core and required track courses, students must complete the following elective track work, related course work, and language requirements:

Elective Track Work (6 credit hours) Students must

complete COMM 4147, International Public Relations and *either* COMM 4410-003, Professional Internship (with international focus) or ANTH 4120, Intercultural Communication.

Related Course Work (9 credit hours) Students may either complete a semester of study abroad earning at least 9 credit hours at a non-American university OR complete an additional 9 credit hours of related course work selected from the following courses. At least 3 credit hours must be taken at the 3000 level or above.

ANTH 2010	Topics in Ethnography
ANTH 2110	Peoples of Africa
ANTH 2115	Culture and Society in the Middle East
ANTH 2116	Contemporary Latin America
ANTH 3110	Cultural Change and Applied Anthropology
ANTH 4120	Intercultural Communication*
HIST 2200	Asian Civilization
HIST 2201	History of Modern Asia/INTL 2201 Introduction to Asian Studies
HIST 2207	Modern Latin America/INTL 2401 Introduction to Latin American Studies
HIST 2211	Modern Africa/INTL 2101 Introduction to African Studies
HIST 3116	Twentieth Century Europe/INTL 2301 Introduction to European Studies
INTL 1101	Introduction to International Studies
INTL 3000	Topics in International Studies
POLS 1130	Introduction to Comparative Politics
POLS 1150	Introduction to International Politics
POLS 3141	European Politics
POLS 3143	African Politics
POLS 3144	Latin American Politics
POLS 3148	Chinese Politics
POLS 3149	Japanese Politics
POLS 3164	U.S.-Latin American Relations
POLS 3165	East Asia in World Affairs
POLS 3167	U.S. and Japan
POLS 3169	Foreign Policy of African States
SPAN 3029	Cultural Dimensions of Doing Business with Spanish Speaking Countries

*ANTH 4120 cannot be counted as both an Elective Track course *and* a Related Course.

Foreign Language In addition to department and university foreign language requirements, students must complete one additional 2000 level foreign language course beyond the departmental foreign language requirement. The following courses would meet this requirement:

French 2202 or 2210
 German 2202 or 2210
 Spanish 2202, 2205, or 2210
 Italian 2202
 Portuguese 2202
 Japanese 2201
 Russian 2201

International, non-native English speakers must score a minimum of 550 on the TOEFL, a minimum of 85 on the MELAB.

COMMUNICATION STUDIES MINOR

The minor in Communication Studies consists of 21 semester hours, which must include: two core courses, COMM 1101 (Public Speaking) and COMM 2100 (Communication Theory); a required course within the track of study; and an additional 12 semester hours to be selected from a list of approved courses. Additional electives are possible with prior approval. COMM 3050 (Topics in Communication Studies), and COMM 3880 (Independent Study), may be included as part of the 12 hours of electives with prior approval of the Departmental Chairperson, although these courses may not be substituted for a required course. A maximum of six hours of electives may be cross-applied between tracks for students pursuing double minors. Students must attain an overall GPA of 2.0 in all coursework within the minor.

In addition, students must fulfill General Education Requirements and requirements for their major. Students planning to declare a Communications Studies minor should consult with the Departmental Chairperson.

TRACKS WITHIN THE MINOR

Mass Media is a track of study designed for students interested in the development of the media as a cultural force and contemporary issues in media criticism. In addition to COMM 1101 and 2100, each student must take COMM 3120, and 12 hours of electives selected from: ARTA 2219; COMM 3050*, 3101, 3121, 3880*, 4101, 4102, 4410 (limit three hours); FORL 3160; FREN 4050; GERM 3160; HIST 3010; JOUR 2160, 3160, 3161; POLS 3104, 3107; RELS 3212; SOCY 2112; SPAN 4050.

Organizational Communication is a track of study designed for students anticipating careers involving communication in organizational settings. In addition to COMM 1101 and 2100, each student must take COMM 3141, and 12 hours of electives selected from: AAAS 2201; ANTH 4120; COMM 2105, 2107, 3050*, 3101, 3880*, 4141, and COMM 4410 (limit three hours); ENGL 2116; MGMT 3160; PHIL 2175; PSYC 2171, 3114; SOCY 4112, 4115.

Public Advocacy is a track of study designed for those students seeking a well-developed background in the general theory and practice of public communication. In addition to COMM 1101 and 2100, each student must take COMM 3130 and 12 hours of electives selected from: COMM 2101, 2102, 2103, 3050*, 3101, 3131, 3403 (limit 4 hours), 3880*, 4410 (limit three hours); POLS 3104, 3107, 3110, 3163.

Public Relations is a track of study designed for students anticipating careers in the public relations context. The track emphasizes understanding the theory and practice of the role of public relations in society. In addition to COMM 1101 and 2100, each student must take COMM 2145, JOUR 2160, and nine hours of electives selected from: COMM 2102, 3050*, 3101, 3141, 3245, 3880*, 4101, 4141, 4145, 4410 (limit three hours); ENGL 2116, JOUR 3160, 3161, 3162; POLS 3103.

JOURNALISM MINOR

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. It is designed for students who have completed ENGL 1101 and 1102. The minor consists of 18 hours of coursework including:

JOUR 2160 Introduction to Journalism
JOUR 3160 Advanced News Reporting and Writing
JOUR 3162 Feature Writing

The nine (9) hours of elective coursework needed to complete the minor may be chosen from:

ENGL 4008 Writing for Publication (3)
ENGL 4204 Expository Writing (3)
JOUR 3050 Topics in Journalism (3)
JOUR 3161 Newsediting (3)
JOUR 3163 Visual Communication in the Media (3)
JOUR 3401 Journalism Practicum (2)
ARTG 2181 Graphic Design I (3)
ARTT 2191 Photography I (3)
ARTT 3183 MacIntosh for Graphic Design (3)
COMM 3120 Communication and the Mass Media
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)
COMM 4410 Professional Internship (3)*
POLS 3103 Public Opinion and the Mass Media
POLS 3104 Politics and the Mass Media

* with approval of advisor

Note: Students may count JOUR 3160, 3161, and 3162 toward the major in English or toward the minor in Journalism; students may not count the same courses toward both.

With their advisor's approval, students in the Communication Studies major may count as related course work any course used to fulfill requirements for the Journalism minor as long as that course is not simultaneously being used to fulfill either *CORE* or *TRACK* requirements of the major.

Department of Criminal Justice

Chairperson: Associate Professor Lord; *Professors:* Arrigo, Friday; *Associate Professors:* Bjerregaard, Blowers, Coston; *Assistant Professors:* Exum, Turner, Hartman, Kuhns; *Instructors:* Beeman, Nicolaides

The undergraduate program in criminal justice 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.

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. Transfer students must complete 37 hours of criminal justice course work unless they have completed the equivalent of STATS 1222, FORL 2201, CJUS 1100, CJUS 2000, CJUS 2102, CJUS 2120, or CJUS 2154 at another institution. In this case, credit will be awarded. The Department also offers a minor. 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.

Transfer students who have an A.A.S. degree in a Criminal Justice related discipline will receive general education exemption and may be awarded up to 15 semester hours of credit for criminal justice coursework completed with a grade of C or better. However, students are required to complete an additional 15 semester hours of upper level criminal justice coursework after an evaluation of the transcript.

Effective Fall 2005, new Criminal Justice majors will be required to declare an approved minor or second major.

The Department also offers a Master of Science degree program in Criminal Justice.

Current UNC Charlotte students interested in declaring a major in Criminal Justice should submit a Declaration of Program and unofficial transcript by October 1 for Fall, March 1 for Spring, and May 1 for Summer. Completion of CJUS 1100 and STATS 1222 with a C or better is required prior to declaration.

BACHELOR OF ARTS

A major in Criminal Justice requires STAT 1222 and 31 semester hours of criminal justice courses, including CJUS 1100 (Introduction to Criminal Justice), CJUS 3100 (Criminal Justice Theory), CJUS 3101 (Research Methods in Criminal Justice), and *one* course from *each* of the following areas:

Law Enforcement Area

CJUS 2000 - Introduction to Law Enforcement
CJUS 3141 - Law Enforcement Behavioral Systems
CJUS 3200 - Security & Loss Prevention

Corrections Area

CJUS 2154 - Introduction to Corrections
CJUS 3150 - Community Corrections
CJUS 3151 - Institutional Corrections
CJUS 3153 - Juvenile Corrections

Legal Area

CJUS 3102 - American Criminal Courts
CJUS 3110 - Criminal Justice and the Law
CJUS 3111 - Criminal Procedure
CJUS 3121 - Juvenile Law
CJUS 3152 - Correctional Law

A minimum of a C average in all criminal justice coursework and at least a C in CJUS 1100, 3100 and 3101 are required.

Criminal Justice majors must also satisfy the foreign language requirement by completing the 2201 level course (or 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.

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. Consult the Criminal Justice Department's Academic Advisor for a suggested schedule to complete the B.A. degree with a major in Criminal Justice.

SUGGESTED COURSE SCHEDULE FOR CRIMINAL JUSTICE MAJORS:

Freshman Year

ENGL 1101.....	3
MATH 1100.....	3
CJUS 1100.....	3
LBST 1000-series	3
ENGL 1102.....	3
STATS 1222.....	3
Science (With Lab)	4
COMM 1101.....	3
SOCY 1101.....	3

Sophomore Year

PSYC 1101 (With/Without Lab).....	3/4
LBST 2101.....	3
FORL 1201	4
CJUS 2000.....	3
CJUS 2120.....	3
LBST 2102.....	3
LBST 2210-series	3
CJUS 2154.....	4
FORL 1202	3
CJUS 2102.....	3

****General Education Goals complete****

Junior Year

CJUS 3100.....	3
CJUS 3102.....	3
2 nd Major/Minor Requirements	6
FORL 2201 (or other conversation course).....	3
CJUS 3101 (W).....	4
CJ Elective.....	3
2 nd Major/Minor Requirements	6
Elective	3

Senior Year

CJ Internship.....	6
2 nd Major/Minor Requirements	6
CJ/Electives	6

****Criminal Justice requirements complete****

2 nd Major/Minor Requirements.....	6
2 nd Major Requirements/Electives	12

****B.A. requirements complete****

CRIMINAL JUSTICE MINOR

A minor in Criminal Justice is available to all undergraduates except Criminal Justice majors and requires 18 approved semester hours including: CJUS 1100 and 3100, and 12 semester hours of upper-division criminal justice electives (3000 and 4000 level courses). A grade point average of at least 2.0 is required, including at least a grade of C in CJUS 1100 and 3100.

Department of Dance and Theatre

Chairperson: Auerbach; *Professors:* Huskey, Sofras; *Associate Professors:* Croghan, Hubbard, Neil, Pizzato, Webster; *Assistant Professors:* Black, Filmore, Ruggaber, Vesce; *Lecturers:* Fitch, Crockett, Mizell, Reiss, Shannon.

DEGREES OFFERED

The Department awards the Bachelor of Arts degree in Dance, Theatre, Dance Education, and Theatre Education. Minors are available in both Dance and Theatre, and North Carolina K-12 teacher licensure can also be earned in both disciplines. In conjunction with the College of Education, the Department also offers an Master of Arts in Teaching Dance and a Master of Arts in Teaching Theatre.

MISSION STATEMENT

The primary goals of the Department of Dance and Theatre are providing an exemplary liberal arts education and inspiring intellectual inquiry while nurturing creativity. The Department awards the Bachelor of Arts degree in Dance, Theatre, Dance Education, and Theatre Education. Minors are available in both Dance and Theatre, and North Carolina K-12 teacher licensure can also be earned in both disciplines.

Students explore the theoretical foundations and aesthetics of both Dance and Theatre through cross-disciplinary as well as discipline-specific courses. While developing a broad base in dance and theatre, students gain skills and training to achieve career goals, commit to life-long learning, and enrich their quality of life. Through course-related performance and technical assignments within the Department's varied production season, students gain practical experience to develop as scholars and artists.

Our educational model is to discuss and explore in the classroom, then experiment in laboratory and rehearsal environments and, finally, to present our findings in the public forums of teaching and performance.

Faculty members are committed to the teaching and practice of dance and theatre, as they foster academic progress and artistic expression in an environment that respects cultural and artistic diversity. In addition, they contribute to the University, the community and their professions through scholarly and creative endeavors and through service activities.

The curricula include courses in acting, directing, dance technique and style (modern dance, ballet, jazz), choreography, and design (costume, scenic, lighting, sound). Courses in history, play analysis, and dance criticism provide the theoretical foundation of the liberal arts degree. Specialized pedagogy classes and laboratory experiences are included in the dance and theatre education degree programs which lead to K-12 teacher licensure in North Carolina reciprocal to South Carolina.

All majors include a departmental core curriculum consisting of Cornerstone and Capstone Seminars, Production and Performance Practica, Exploration of Voice and Movement, and Elements of Design for the Stage. Students complete their majors by taking the specific dance, dance education, theatre, or theatre education discipline core and selected elective courses. The electives can be focused in the student's area of interest--performance, design, directing, choreography, theory, administration/management or pedagogy.

The Department presents a season of fully-staged plays and dance concerts as well as informal productions, student directed and choreographed works, musical theatre works, and original collaborative works. 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.

A major in Dance, Dance Education, Theatre, or Theatre Education provides a liberal arts education. The skills and attributes developed in dance or theatre are essential to a professional arts career and they are applicable to all life endeavors. Motivation, concentration, self-confidence, creativity, flexibility, problem-solving, communication skills, and teamwork are enhanced through the study of dance and theatre.

Graduates may move directly into the profession as performers, directors/choreographers, designers or teachers. More commonly, they seek advanced training in graduate programs or apprenticeships with professional organizations.

MAJOR IN DANCE. A major in Dance leading to the B.A. degree consists of 40 semester hours including:

- *11 hours in the departmental core:*
DATH 1100 Exploration of Voice and Movement
DATH 1200 Elements of Design for the Stage
DATH 1600 Cornerstone Seminar
DATH 2401 Production Practicum
DATH 2402 Performance Practicum
DATH 3600 Capstone Seminar
- *22 hours in the dance core:*
DANC 1201 Contemporary Dance Technique, Style & Theory I
DANC 1202 Contemporary Dance Technique, Style & Theory II
DANC 2201 Contemporary Dance Technique, Style & Theory III
DANC 2216 Elements of Dance Composition
DANC 2226 Jazz Dance I
DANC 3101 Dance History I

DANC 3102 Dance History II

- *7 hours of electives*

Note: All of these courses must be completed with no more than one grade of D and a GPA of at least 2.5.

MINOR IN DANCE. A minor in Dance requires 22 semester hours including:

DATH 1100 Exploration of Voice and Movement
DATH 1200 Elements of Design for the Stage
DATH 2401 Production Practicum
or DATH 2402 Performance Practicum
DANC 1201 Contemporary Dance Techniques, Style & Theory I
DANC 2226 Jazz Dance I
LBST 1101 The Arts & Society: Dance
DANC XXXX (6 hours of dance electives)

MAJOR IN THEATRE. A major in Theatre leading to the B.A. degree consists of 40 semester hours including:

- *11 hours in the departmental core:*
DATH 1100 Exploration of Voice and Movement
DATH 1200 Elements of Design for the Stage
DATH 1600 Cornerstone Seminar
DATH 2401 Production Practicum
DATH 2402 Performance Practicum
DATH 3600 Capstone Seminar
- *21 hours in the theatre core:*
THEA 1209 Acting I
THEA 1203 Stagecraft I
THEA 1205 Costuming Techniques and Stage Makeup
THEA 2101 Play Analysis
THEA 2216 Elements of Theatre Staging
THEA 3101 Theatre History I
THEA 3102 Theatre History II

- *8 hours of electives*

Note: These courses must be completed with no more than one grade of D and a GPA of at least 2.5.

MINOR IN THEATRE. A minor in Theatre requires 22 semester hours including:

DATH 1100 Exploration of Voice and Movement
DATH 1200 Elements of Design for the Stage
DATH 2401 Production Practicum
or DATH 2402 Performance Practicum
THEA 2101 Play Analysis
THEA 3101 Theatre History I
or THEA 3102 Theatre History II
THEA XXXX (8 hours of theatre electives)

DANCE EDUCATION (K-12). The major in Dance Education leads to (K-12) teacher licensure. In addition to completing the coursework for the major in Dance, Dance Education students take DANC 3230 Choreography as one of their dance electives and complete professional education requirements:

DANC 4227/5227 Dance Education Methods I
DANC 4227L/5227L Elementary Clinical Experience
DANC 4257/ 5227 Dance Education Methods

DANC 4257L/ 5227L	Secondary Clinical Experience
DANC 3467	Student Teaching/Seminar: K-12 Fine and Performing Arts
EDUC 2100	Introduction to Education and Diversity In Schools
MDSK 3160	Learning and Development: Birth through Adolescence
SPED 2100	Introduction to Students with Special Needs
SPED 3290	Modifying Instructions for Learners with Diverse Needs
READ 3255	Integrating Reading and Writing Across Content Areas
EIST 4100	Computer Applications in Education

Students seeking dance licensure should plan to declare the dance education major by the end of the sophomore year. A later decision to seek licensure may result in a delayed graduation date. A GPA of 2.75 is required for admission to student teaching. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

THEATRE EDUCATION: (K-12). The major in Theatre Education leads to (K-12) teacher licensure. In addition to completing the coursework for the major in Theatre, Theatre Education majors take THEA 3217 Directing and THEA 2218 Playwriting as theatre electives and complete professional education requirements:

THEA 1102	Creative Drama for the Classroom Teacher
THEA 1109	Preliminary Experience in Student Teaching
THEA 2409	Practicum in Creative Drama: K-8
THEA 2410	Practicum in Secondary School Play Production
THEA 4220/ 5220	Methods of Facilitating Learning in Theatre Arts
THEA 3467	Student Teaching/Seminar: K-12 Fine and Performing Arts: Theatre
EDUC 2100	Introduction to Education and Diversity in Schools OR
MDSK 3160	Learning and Development: Birth through Adolescence
SPED 2100	Introduction to Students with Special Needs
EIST 4100	Computer Applications in Education
COMM 2105	Small Group Communication OR
HUSV 3050	Leadership and Group Dynamics

Students seeking theatre licensure should plan to declare the theatre education major by the end of the sophomore year. A later decision to seek licensure may result in a delayed graduation date. A GPA of 2.75 is required for admission to student teaching. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

PROFESSIONAL TRAINING CERTIFICATE IN DANCE:

In conjunction with Charlotte's professional dance company, North Carolina Dance Theatre (NCDT), the University offers a Professional Training Certificate in Dance for those specializing in ballet performance. The partnership provides the student an association with a professional dance company while earning a college degree. The sixteen 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 major, the two-year Professional Training Certificate in Dance provides training with expert teachers at DancePlace, the official school of North Carolina Dance Theatre. Rehearsal and performance opportunities with the company; the second company, NCDT 2; or the DancePlace performing group, Student Ensemble; put students in contact with internationally acclaimed choreographers. North Carolina Dance Theatre is an exceptional company whose Artistic Director, Jean-Pierre Bonnefoux and his Associate Directors, Patricia McBride and Jerri Kumery, include both classical and contemporary works in the repertory.

ATTENDANCE POLICY

Dance and Theatre students are expected to attend all scheduled Dance and Theatre Department classes. Specific attendance policy will be listed on each course.

Department of English

Chairperson: Professor Cy Knoblauch; *Bonnie E. Cone Distinguished Professor in Teaching:* Boyd H. Davis; *Professors:* Brannon, Govan, Lunsford, McGavran, Moss, Shealy, West; *Associate Professors:* Amante, Bosley, Connolly, C. Davis, Gardner, R. Grey, Jackson, Leak, Morgan, Pereira, Rauch, Thiede, Wickliff; *Assistant Professors:* Gargano, Gwyn, Melnikoff, Munroe, Parkison, Rudes, Scott; *Lecturers:* Arnold, Brown, Cochran, Cox, Eapen, Eckard, L. Grey, Hofmann, Hutchinson, Lazenby, Muesing, Pooler-Courtney, Presnell, Rothwell, Settle, Stallings, Townsend, Tyree; *Emeritus Professors:* Burne, Carver, Jacoby, Mason, Smith, Varnas; *Emeritus Associate Professors:* Gatlin, Harper, McNair, Shapiro, Watson.

BACHELOR OF ARTS

A major in English leading to the B.A. degree consists of 33 semester hours of coursework beyond the six hours in composition (usually 1101 and 1102) that are part of the General Education requirements. Required courses include ENGL 2100 and 3100, which are prerequisites for any other 3000 or 4000 level literature courses; ENGL 3300, ENGL 3301, and ENGL 3302 (American and British Literature surveys); one course in language/linguistics (above 2000 level); and five elective courses in English, two of which may be at the 2000 level and two of which must be at the 4000 level. A GPA of 2.0 or better in all English courses is required for graduation.

The English major also requires completion of COMM 1101; competency in a foreign language at the intermediate level, certified either through placement exam or coursework (2000 level); and a minor established at UNC Charlotte or an individually designed minor consisting of a minimum of 18 semester hours in coursework selected from other departments designed to supplement and strengthen the goals of the major, approved by the student's advisor and the department. Students with a second major in another department will be considered automatically to have satisfied the minor requirement, as will students who complete teacher licensure requirements.

Internships. Internships in the community and at the University are available for upper-level English majors. Contact the English Department for further information.

English Department Class Attendance Policy. Students are expected to attend all scheduled English Department classes. Specific attendance policy for each section is left to the teacher.

Awards. The Department gives awards each spring (usually to senior English majors): the Margaret Bryan Award for excellence in scholarship; the Intimate Bookshop Creative Writing Awards; the Aristidis Katopodis Award for excellence in the study of English; the Julian Mason Award for excellence in the study of Southern literature; and the Robert M. Wallace Award for excellence in the study of English. Each spring, it also awards the Goudes Scholarship and the Joan Neal Scholarship to rising senior English majors, for academic excellence and financial need.

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 Facilities and Services section of this *Catalog*.

ENGLISH MINOR

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, Technical/Professional Writing, or African American Literature.

A minor in English consists of 18 hours in English at the 2000 level or above. Students must take ENGL 2100 and 3100 and at least six additional hours in courses at the 3000 level or above to complete the minor. A GPA of 2.0 or better in all English courses taken is required for graduation.

AFRICAN-AMERICAN LITERATURE MINOR

A minor in African-American Literature consists of 18 hours as follows:

Required courses - 9 hours

(Note: these courses must be taken before the elective courses.)

ENGL 2100	Writing About Literature
ENGL 2301/	Introduction to African American
AAAS 2301	Literature
AAAS 1111	The African American Experience
	Through
	Reconstruction

Elective courses – 9 hours

ENGL 4147	Early Black American Literature
ENGL 4148	Twentieth-Century Black American
	Literature: Prose
ENGL 4155	Pan-African Literature
ENGL 4156/	Gender and African American Literature
AAAS 4106	
ENGL 4157/	African American Poetry
AAAS 4107	

ENGL 4158/	African American Literary Theory and
AAAS 4108	Criticism
AAAS 2106	Literary Analysis of Black Protest of the
	60's
ENGL 3050,	Special Topics courses (only when
4050, 4090	concerning African American literary
	figures or topics)

Note: ENGL 1101 and 1102 (or 1103) are prerequisites for all courses in the minor except AAAS 1111 and AAAS 2106.

TECHNICAL/PROFESSIONAL WRITING MINOR

A minor in Technical/Professional Writing consists of 21 hours; required courses are English 4180 and ENGL 4410. Also required are two courses above the 1000-level in a technical or scientific discipline that cannot also count towards General Education requirements. The remaining courses can be selected from ENGL 4008, 4181, 4182, and 4183. Students may request permission to take other appropriate courses from the Coordinator of the Technical/Professional Writing Program. ENGL 1101/1102 (1103) and 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 English Department allows English majors who minor in African American Literature or Technical Writing to count only two courses from the minor toward fulfillment of the major degree requirements.

TEACHER LICENSURE IN ENGLISH

Students seeking licensure to teach English in grades 9-12 should consult with their advisors in the Department of Middle, Secondary, and K-12 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; a GPA of at least 2.75 for all courses taken at UNC Charlotte; and submission of an acceptable writing portfolio to, and successful interview with, the English Department's Teacher Education Committee. Required courses are: ENGL 2100 (and/or additional approved coursework in writing), 3100; ENGL 3132 and one additional course focusing on language or literacy above the 2000 level; (e.g. ENGL 4161, or ENGL 4166); ENGL 3104; one 3000 level survey course in British literature, one in American literature, and one in either British or American literature; ENGL 4254; ENGL 2111 or 2112; ENGL 4116 or 4117 (or an approved 4000 level course in Shakespeare); one course in minority literature(s) (ENGL 2301, 3156, 4104, 4146, 4147, 4148, 4156, 4157, 4158, 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 are **not** required to complete an approved minor. 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 Student Academic Services in the College of Education.

Film Studies

INTERDISCIPLINARY STUDIES

Director: Robert C. Reimer, Professor of German

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 Arts and Sciences courses that satisfy the minor represent different aspects of film and video art: (1) Culture, (2) History, (3) Theory, and (4) Production.

FILM STUDIES MINOR

The minor in Film Studies requires the completion of 18 hours of approved courses as follows: (1) either ENGL 2106 Introduction to Film Analysis or FORL 3160 European Cinema; and (2) at least five additional courses representing at least three of the departments offering the minor. Courses that satisfy the minor are as follows:

AAAS	2105	Black Images in the Media
ARTM	3105	Video Art
ARTT	3891	Time Arts Workshop
COMM	3050	Topics in Communication Studies: Film
ENGL	3050	Topics in English: Film
FREN	3160	Topics in French: Film
GERM	3160	Survey of German Film
HIST	3310	History and Culture through Film
RELS	3212	Film and Identity
THEA	2218	Playwriting
THEA	3001	Topics in Theatre: Film

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 ARSC 3400, the internship number in the College of Arts and Sciences.

Department of Geography and Earth Sciences

Chairperson: Professor Ingalls; *Professors:* Bender, Furuseth, Hartgen, Hauser, Xiang; *Associate Professors:* Allan, Bobyarchick, Campbell, Diemer, Ives, Martin, Meentemeyer, Moore; *Assistant Professors:* Chadwick, Chilton, Eppes, Etherton, Graves, Hippensteel, Kalafsky, Lee, Smith, Thomasson; *Lecturers:* Garcia, Garo, Smith, Strickland; *Emeritus:* Lord, Nunnally, Schul, Sommer, Stuart; *Executive in Residence:* Rash; *Associate Provost:* Walcott; *Adjunct:* Tyrrell

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 Sciences includes the study of the hydrosphere, atmosphere, and surficial materials of the earth. Geology examines the composition, history, and structure of the whole earth. Meteorology provides a more 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 Sciences major might better understand soil formation and chemical weathering with classes in petrology and optical mineralogy. Emphasis in one area should not preclude class-work or interest in another, and in fact, this type of interdisciplinary work will often be critical to the student's program of study.

Geography. The Geography curriculum is oriented toward the methodologies of social science in which the importance of location is stressed. Traditional regional studies and conceptual courses that deal with land use patterns, transportation systems, industrial location, the distribution of retail activities, city planning, and urban systems are augmented by technique-oriented courses such as map design and compilation, computer mapping, analysis of satellite images, statistical methods, and geographic information systems (GIS). These courses prepare students in both the concepts and methods of contemporary spatial analysis.

Geography majors find careers open to them in urban and regional planning, cartography, GIS, 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. (*See the Graduate Catalog regarding the M.A. in Geography program.*)

Earth Sciences. The Earth 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, hydrosphere and/or surficial materials including environmental applications of these fields of study. Course work covers areas such as environmental geology, hydrology, remote sensing, surfaces processes, soil science, and Environmental Information Systems. This program also prepares students for graduate studies in hydrology and remote sensing.

Students majoring in Earth Sciences pursue careers in environmental consulting, environmental planning, meteorology, land development planning, site analysis, terrain analysis, and teaching. There are employment opportunities in both government and private industry with the greatest range of positions available to students who earn graduate degrees. (*See the 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 and petrology, and optical mineralogy.

Students majoring in Geology pursue careers in geotechnical engineering, environmental consulting, mining, oil and gas exploration, site analysis, and teaching. There are employment opportunities in both government and private industry with the greatest range of positions available to students who earn graduate degrees. (*See the Graduate Catalog regarding the M.S. in Earth Sciences program*).

Meteorology. The Meteorology program focuses on the atmosphere. Students pursuing the B.S. degree will 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 careers 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 Apple 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 classes 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, Power Point and Astound.

Cooperative Education in Geography and Earth Sciences. 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. Students interested in learning more about participating in this program should contact the Department of Geography and Earth Sciences or the University Career Center.

GEOGRAPHY MAJOR: BACHELOR OF ARTS

A major leading to a B.A. degree consists of 29 hours in geography and earth sciences and will include GEOG 1101, 1105, 2100, 2101, 2110 and ESCI 1101. Except for required courses, all work offered for the major must be numbered 2100 or above. Students are encouraged to take additional coursework in related disciplines or to select a second major. Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.A. degree with a major in Geography.

GEOGRAPHY MAJOR: BACHELOR OF SCIENCE

A major leading to a B.S. degree consists of 40 hours of geography and earth sciences and will include 17 hours of major requirements listed below. In addition, students must complete ENGL 2116 (Introduction to Technical Communication) as well as General Education English requirements, and one mathematics course above MATH 1103. Options are available within the major in Economic Geography and in Community and Regional Planning and other concentrations can be developed. Students should contact their advisors about these and other possible concentrations. Except for required courses, all work offered for the major must be in courses numbered 2100 or above. Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.S. degree with a major in Geography.

Major Requirements (17 hours)

GEOG	1101	World Regional Geography	3
ESCI	1101	Earth Science-Geography	4
ESCI	1101L	Earth Science-Geography Lab	1
GEOG	1105	Location of Human Activity	3
GEOG	2100	Maps and Graphs	3
GEOG	2101	Maps and Graphs Laboratory	1
GEOG	2110	Introduction to Geographic Research	3

Community and Regional Planning Option Requirements (select 16 hours)

GEOG	3200	Land Use Planning	3
GEOG	3205	Internal Structure of the City	3
GEOG	3210	Regional Planning	3

GEOG	3215	Environmental Planning	3
GEOG	4120	Introduction to GIS	4
GEOG	4210	Urban Planning Methods	3

Economic Geography Option Requirements (select 15 hours)

GEOG	3000	Topics in Regional Geography	3
GEOG	3105	Geography of Global Economy	3
GEOG	3150	Manufacturing Geography	3
GEOG	3205	Internal Structure of the City	3
GEOG	3605	Geography of Europe (W)	3
GEOG	4000	Selected Topics in Geography	3
GEOG	4108	Sport, Place & Development	3
GEOG	4155	Retail Location	3
GEOG	4160	Geography of Transportation Systems	3
GEOG	4240	Geography of Knowledge & Information	3
GEOG	4255	Applied Population Analysis	3

Option-related electives to complete B.S. degree may be selected from:

GEOG	3100	The City and Its Region	3
GEOG	3115	Urban Transportation Problems	3
GEOG	3205	Internal Structure of the City	3
GEOG	3265	Behavioral Geography	3
GEOG	4103	Computer Mapping	3
GEOG	4130	Advanced GIS	4
GEOG	4155	Retail Geography	3
GEOG	4209	Small Town Planning	3
GEOG	4255	Applied Population Analysis	3
GEOG	4400	Internship in Geography	3-6

Geographic Information Systems Option (select 5 courses)

GEOG	4101	Cartographic Techniques	3
GEOG	4102	Cartographic Design & Map Construction	3
GEOG	4103*	Computer Mapping	3
GEOG	4120*	Geographic Information Systems	4
GEOG	4130*	Advanced GIS	4
ESCI	4170	Fundamentals of Remote Sensing	4
ESCI	4180	Digital Image Processing in Remote Sensing	4

*Required

Note: It is recommended that students supplement these courses with computer programming and database courses such as ITCS 1214 and ITCS 3160.

GEOGRAPHY MINOR

A minor in Geography consists of 19 hours, including GEOG 1101 and 1105 and ESCI 1101/1101L, and nine additional hours in geography. The minor can be tailored to support a number of majors, such as business, computer science, political science, and architecture.

EARTH SCIENCES MAJOR: BACHELOR OF ARTS

A major in Earth Sciences leading to a B.A. degree consists of a minimum of 40 hours of required Earth Science (ESCI) and Geology (GEOL) courses and 10 hours of elective courses.

Required Courses			Semester Hours
ESCI	1101	Earth Science-Geography	3

ESCI	1101L	Earth Science-Geography Lab	1
GEOL	1200	Physical Geology	3
GEOL	1200L	Physical Geology Lab	1
GEOL	1210	Earth History	3
GEOL	1210L	Earth History Lab	1
ESCI	2101	The Environmental Dilemma	3
ESCI	3105	Oceanography	3
ESCI	4140	Hydrologic Processes	4
ESCI	4210	Soil Science	4
ESCI	4600	Earth Sciences Seminar	1
GEOL	3115	Mineralogy	4
GEOL	3190	Environmental Geology	3
GEOL	4105	Geomorphology	3
METR	3140	Introduction to Meteorology and Climatology	3
Subtotal:			40

Elective courses

Ten hours of elective coursework may be selected from additional ESCI and GEOL courses, GEOG 2120, 3200, 3215 or 4120, CHEM 1251, 1252, and associated labs, PHYS 1101, 1102 or PHYS 2101 and 2102 and associated labs, MATH 1241, 1242, and STAT 2122.

EARTH SCIENCES MAJOR: BACHELOR OF ARTS, SECONDARY TEACHING OPTION

Students preparing to teach high school earth science may become licensed by earning the B.A. degree including the Secondary Teaching Option. This program consists of a minimum of 43 hours in earth science and geology, including ESCI 1101, 1101L, 2101, 3105, 3140, 4210, 4140, 4600; GEOL 1200, 1200L, 1210, 1210L, 3115, 3190, and 4105; and 3 elective hours selected from earth science or geology courses. Also required for this option are CHEM 1251 & 1251L, PHYS 1101 & 1101L, SPED 2100, 3290, EDUC 2100, SECD 2140, 3141, 3142, 3441, MDSK 3150, 3151, 3251; HPKD 3152, and READ 3255. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

EARTH SCIENCES MAJOR: BACHELOR OF SCIENCE

A major in Earth Sciences leading to a B.S. degree consists of a minimum of 30 hours of required Earth Science (ESCI) and Geology (GEOL) courses, 15 hours of elective courses and 21 hours of required extra departmental courses. Students considering a career as a licensed professional soil scientist should complete the Bachelor of Science degree with 15 hours of soil science course work as well as meet the work experience and examination requirements of the NC licensure board.

Required Courses		Semester Hours	
ESCI	1101	Earth Science-Geography	3
ESCI	1101L	Earth Science-Geography Lab	1
GEOL	1200	Physical Geology	3
GEOL	1200L	Physical Geology Lab	1
GEOL	3115	Mineralogy	4
ESCI	3140	Introduction to Meteorology and Climatology	3
GEOL	3190	Environmental Geology	3
ESCI	4210**	Soil Science	4
GEOL	4105	Geomorphology	3
ESCI	4140	Hydrologic Processes	4

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ESCI	4600	Earth Sciences Seminar	1
Subtotal			30

Elective courses

Students can choose a minimum of 15 hours of earth sciences, geology and pre-approved geography courses numbered 3000 or above.

Hydrology

ESCI	3105	Oceanography	3
ESCI	4155	Fluvial Processes	4
ESCI	4222	Watershed Science	3
GEOL	4145	Fundamentals of Hydrogeology	4
GEOL	4165	Aqueous Geochemistry	4

Surficial Materials

ESCI	4233	Geoenvironmental Site Characterization	4
GEOL	3124	Sedimentology	4
GEOL	4105L	Geomorphology Laboratory	1
GEOL	4115	Applied Geophysics	4
GEOL	4120	Geochemistry	3
GEOL	4410	Applied Soil Science	3

Atmospheric Sciences

METR	3220	Physical Meteorology	3
METR	3240	Boundary-Layer Meteorology	4
METR	3245	Synoptic Meteorology	4
METR	3250	Dynamic Meteorology	4
METR	3252	Weather Analysis Lab	1
METR	4150	Applied Climatology	3

Environmental Information Systems

ESCI	2101	Environmental Dilemma	3
ESCI	3170	Environmental Quality Management	3
ESCI	4170	Fundamentals of Remote Sensing	4
ESCI	4180	Digital Image Processing in Remote Sensing	4
GEOG	3215	Environmental Planning	3
GEOG	4120	Introduction to GIS	4
GEOG	4130	Advanced Geographic Information Systems	4
Subtotal			15

Required Extra Departmental Courses

CHEM	1251	Principles of Chemistry	3
CHEM	1251L	Principles of Chemistry Lab	1
PHYS	1101	Introductory Physics I	3
PHYS	1101L	Introductory Physics I Lab	1
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
MATH	1241	Calculus I	3
MATH	1242	Calculus II	3
STAT	2122	Elements of Statistics I	3
Subtotal			21

** Classes approved for NC Soil Scientist licensure

[^] Select either CHEM 1252 or PHYS 1102

TOTAL 66

Consult the Department of Geography and Earth Sciences for a suggested schedule to complete the B.S. degree with a major in Earth Sciences or see the Department

website at www.geoearth.uncc.edu for further information.

EARTH SCIENCES MINOR

A minor in Earth Sciences consists of 20 hours of Earth Sciences (ESCI) courses. Requirements include: ESCI 1101 and ESCI 1101L (Earth Sciences Geography) and GEOL 1200 and 1200L (Physical Geology), and 12 additional hours in Earth Sciences and Geology classes. The minor can be tailored to support a number of majors, such as education, engineering, biology, chemistry, or physics.

Required Courses			Semester 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
Subtotal			8

Recommended Elective Courses			Semester Hours
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	3240	Boundary Layer Meteorology	4
METR	3245	Synoptic Meteorology	4
Subtotal			12
TOTAL			20

GEOLOGY MAJOR: BACHELOR OF ARTS

A major in Geology leading to a B.A. degree consists of a minimum of 50 semester hours in geology and earth sciences courses.

Required Courses			Semester 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	3140	Paleontology	3
GEOL	3190	Environmental Geology	3
ESCI	4600	Earth Sciences Seminar (O)	1
Subtotal			31

Elective Courses			Select 19 hours
CHEM	1251	Principles of Chemistry	3
CHEM	1251L	Principles of Chemistry Lab	1
ESCI	4140	Hydrologic Processes	4
ESCI	4155	Fluvial Processes	4
ESCI	4170	Fundamentals of Remote	4

ESCI	4210	Sensing Soil Science	4	GEOL	4120	Geologic Mapping & Interpretation	4
ESCI	4233	Geoenvironmental Site Characterization	4	GEOL	4135	Tectonics	4
GEOG	4120	Geographic Information Systems	4	ESCI	4140	Hydrologic Processes	4
GEOL	3120	Geochemistry	3	GEOL	4145	Fundamentals of Hydrogeology	3
GEOL	3190L	Environmental Geology Lab	1	GEOL	4145L	Hydrogeology Lab	1
GEOL	4100	Igneous & Metamorphic Petrology	4	ESCI	4155	Fluvial Processes	4
GEOL	4105	Geomorphology	3	ESCI	4170	Fundamentals of Remote Sensing	4
GEOL	4105L	Geomorphology Lab	1	GEOL	4165	Aqueous Geochemistry	4
GEOL	4110	Stratigraphy	4	ESCI	4210	Soil Science	4
GEOL	4115	Applied Geophysics	4	GEOL	4800	Individual Study in Geology	1
GEOL	4120	Geologic Mapping & Interpretation	4	Required Extra-Departmental Courses			
GEOL	4125	Geologic Summer Field Camp	6	CHEM	1251	Principles of Chemistry	3
GEOL	4130	Optical Mineralogy	4	CHEM	1251L	Principles of Chemistry Lab	1
GEOL	4135	Tectonics	4	PHYS	1101	Introductory Physics I	3
GEOL	4145	Fundamentals of Hydrogeology	3	PHYS	1101L	Introductory Physics I Lab	1
GEOL	4145L	Hydrogeology Lab	1	MATH	1241	Differential & Integral Calculus I	3
GEOL	4165	Aqueous Geochemistry	4	MATH	1242	Differential & Integral Calculus II	3
GEOL	4185	Mineralogy, Economics & Environment	3	AND:			
GEOL	4400	Internship in Geology	3-6	CHEM	1252	Principles of Chemistry	3
GEOL	4410	Applied Soil Science	4	CHEM	1252L	Principles of Chemistry Lab	1
GEOL	4800	Individual Study in Geology	1-4	OR:			
MATH	1241	Calculus I	3	PHYS	1102	Introductory Physics II	3
PHYS	1101	Introductory Physics I	3	PHYS	1102L	Introductory Physics II Lab	1
PHYS	1101L	Introductory Physics I Lab	1	The following courses are recommended for students planning to attend graduate school:			
Subtotal			19	GEOL	4125	Field Camp	6
TOTAL			50	GEOL	4800	Individual Study in Geology	3

GEOLOGY MAJOR: BACHELOR OF SCIENCE

A major in Geology leading to a B.S. degree consists of a minimum of 45 hours in geology and earth sciences and 18 hours of extradepartmental courses in chemistry, physics and mathematics.

Required Courses			Semester 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
Subtotal			28
Elective Courses			Select 17 hours
GEOL	3120	Geochemistry	3
GEOL	3120L	Geochemistry Lab	1
GEOL	3140	Paleontology	3
GEOL	3190	Environmental Geology	3
GEOL	3190L	Environmental Geology Lab	1
GEOL	4100	Igneous & Metamorphic Petrology	4
GEOL	4105	Geomorphology	3
GEOL	4105L	Geomorphology Lab	1
GEOL	4110	Stratigraphy	4
GEOL	4115	Applied Geophysics	4

GEOLOGY MINOR

A minor in Geology consists of a minimum of 20 semester hours in Geology courses. The minor can be tailored to support a number of majors, such as engineering, biology, chemistry, or physics. Upper division earth sciences courses can be applied to the minor with permission of the department.

Required Courses			Semester Hours
GEOL	1200	Physical Geology	3
GEOL	1200L	Physical Geology Lab	1
GEOL	1210	Earth History	3
GEOL	1210L	Earth History Laboratory	1
Subtotal			8
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 & 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 & Interpretation	4

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GEOL	4125	Geologic Summer Field Camp	6
GEOL	4130	Optical Mineralogy	4
GEOL	4135	Tectonics	4
GEOL	4145	Fundamentals of Hydrogeology	3
GEOL	4145L	Hydrogeology Lab	1
GEOL	4165	Aqueous Geochemistry	4
GEOL	4400	Internship in Geology	3-6
GEOL	4800	Individual Study in Geology	1-4
Subtotal			12

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

TOTAL 20

METEOROLOGY MAJOR: BACHELOR OF SCIENCE

The Bachelor of Science program in Meteorology comprises 69 hours in required Earth Science, Geology, Mathematics, Chemistry, Physics, and Engineering courses and 7 hours in elective Earth Science courses. Of these 69 hours, a minimum of 20 semester hours will be in Meteorology courses, including METR 3140, METR 3220, METR 3245, METR 3250, METR 4245, and METR 4250. An outline of the Bachelor of Science program in Meteorology appears below. Students enrolled in the Bachelor of Science in Meteorology program must complete a total of 120 hours and fulfill the general education requirements applicable to all baccalaureate degrees at UNC Charlotte.

Required Courses			Semester 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
Subtotal			8

Required Upper Division Courses			Semester Hours
ESCI	3105	Oceanography	3
ESCI	4600	Earth Sciences Seminar	1
METR	3140	Introduction to Meteorology and Climatology	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
Subtotal			24

Elective Courses			Select 7 Hours
METR	3240	Boundary Layer Meteorology	4
METR	3252	Weather Analysis Laboratory	1
ESCI	4140	Hydrologic Processes	4
METR	4150	Applied Climatology	3
ESCI	4170	Remote Sensing	4

ESCI	4180	Digital Image Processing	4

Required Extra-Departmental Courses			Semester Hours
MATH	1241	Differential & Integral Calculus I	3
MATH	1242	Differential & Integral Calculus II	3
STAT	2122	Intro Probability & Statistics	3
MATH	2171	Differential Equations	3
CHEM	1251	Principles of Chemistry	3
CHEM	1251L	Principles of Chemistry Lab	1
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
ETME	3133	Fluid Mechanics	3
ETME	3143	Thermodynamics	3
Subtotal			30
TOTAL			69

Honors in Geography and Earth Sciences Program.

To graduate with Honors in Geology, Geography, Earth Sciences, or Meteorology, a student must meet the following requirements:

1. Satisfy all the requirements for the degree sought and the major in Geography, Geology, Earth Sciences, or Meteorology.
2. Complete at least two courses designated as Honors in the UNCC course schedule. These may be offered through the University Honors Program or from any of the individual departments that have Honors designated courses. Honors work may be undertaken as early as the first semester of the freshman year.
3. Maintain at least a 3.2 GPA in all Honors work, 3.25 GPA overall, and 3.2 GPA in all geography, geology, and earth sciences courses taken at UNCC to satisfy major requirements.

As part of the final 15 hours of course work, the student must (1) register for the Honors section of GEOG 4800/GEOL 4800/ESCI 4800/METR 4800, Individual Study in Geography/Geology/Earth Sciences/Meteorology, and (2) complete a research project to be submitted to a faculty department Honors committee that will certify that the project merits Honors distinction. The candidate must earn the grade A on the thesis research. To be certified as Honors quality, a project must contain original research and demonstrate a high degree of scholarship. Students seeking the Honors designation must notify the Honors Committee no later than the second week of classes that the project be evaluated for Honors. Faculty members who serve on the 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 Committee. Should the Committee agree to confer Honors on the student's project, it will certify this to the Department Chair. Should the Committee decide that the project does not warrant Honors, the student will still receive whatever grade the faculty member supervising the project assigns.

Gerontology

INTERDISCIPLINARY STUDIES

Director and Graduate Coordinator: Professor Shenk;
Undergraduate Coordinator: Professor Foos

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 by professionals 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.

GERONTOLOGY MINOR

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.

- I. The two **required courses** are the following:
 GRNT 2100 Introduction to Gerontology (3)
 GRNT 3600 Senior Seminar and Field Experience in Aging (W) (3)
- II. Select at least two of the following **primary electives**:
 GRNT 2124 Psychology of Aging (3)
 GRNT 3115 Health and the Aging Process (3)
 GRNT 4110 Sociology of Aging (3)
 GRNT 4250 Aging Programs and Services (3)
- III. **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.
 GRNT 3132 Aging and Culture (W) (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 4260 Women: Middle Age and Beyond (3)
- GRNT 4270 Intergenerational Relationships and Programs (3)
- PHIL 3228 Biomedical Ethics (3)
- PSYC 3125 Older Worker and Retirement (W) (3)
- SOCY 3267 Death and Dying
- SOCY 4130 Sociology of Health and Illness (3)
- GRNT 4134 Families and Aging (3)
- GRNT 4150 Older Individual and Society (3)
- SOWK 4101 Social Work Practice with the Elderly (3)

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 admissions 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 *Graduate Catalog* for more details.

Department of History

Chairperson: Smail; *Professors:* Johnson, Kierner, Morrill, Smail; *Robert Lee Bailey Distinguished Professor:* Goldfield; *Charles H. Stone Distinguished Professor:* J.D. Smith; *Professors Emeritus:* Rieke, Perzel; *Associate Professors:* Buchenau, Dupre, Flower, Laurent, Sabol, Thompson; *Assistant Professors:* Aydin, Cox, Dávila, Feinberg, Flint, Haynes, Hogue, Mixon, Thorsheim; *Lecturers:* Lansen, McKinley; *Adjunct Faculty:* Azevedo (AAAS), Rauch (ENGL), R. Smith (AAAS).

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 a specific job training. Most history majors, like other majors in the Arts and Sciences, go into a wide variety of jobs in the business world--from sales or communications to research and administration. The most popular history-related field that majors enter is teaching, and the Department of History offers a secondary teacher licensure program in cooperation with the Department of Middle, Secondary, and K-12 Education with the College of Education. Other opportunities for training in history-related fields are available as well. Members of the faculty have expertise and offer courses in historic preservation, local history, and other aspects of public history. Through the master's program history majors can pursue their interests at the graduate level. (See *The Graduate Catalog*).

Study Abroad. Arrangements can be made for study abroad in Asia, Africa, Europe, Latin America or Canada.

BACHELOR OF ARTS

A major in History leading to the B.A. degree requires a minimum of 33 hours in History meeting the requirements for A) Foundations, B) Elective Coursework, and C) Senior Seminar outlined below. In addition there is D) a related work requirement in a foreign language. No more than 6 hours of transfer or AP credit will be counted towards 1000-level courses in the major. The student must achieve a minimum GPA of 2.0 in all history courses.

- A. Foundations: 9 hours of History, consisting of
- HIST 1121, Western Civilization since 1660
 - HIST 1160 or HIST 1161, US History I or II
 - HIST 2100, Introduction to Historical Studies, a skills-based seminar.

HIST 1121 and 1160/61 are normally taken in the freshman or sophomore year; HIST 2100 is normally taken in the sophomore year or as soon as possible after declaring the major.

- B. Elective Coursework: 21 hours of History, of which
- No more than 3 hours are at the 1000 level. Students seeking secondary certification in History Education are strongly urged to take both HIST 1160 and 1161.
 - At least 6 hours are in Non-Western History (Asia, Africa, Latin America, Middle East)
 - At least 9 hours are at the 3000 level

- C. Senior Seminar: 3 hours
- History 4000, 4001, 4002, or 4300

- D. Related Work: Students majoring in History 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 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 ENGL 1101 and ENGL 1102 or the equivalent.

TEACHER LICENSURE

The department, in collaboration with the College of Education and the Department of Middle, Secondary, and K-12 Education, offers a program of history and professional education courses to prepare students for a North Carolina (9-12) teaching license. Students interested in teaching history and 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 a teacher education program. Students should contact the 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*.

Students seeking teacher licensure in History must complete the requirements for the History major, including at least three semester hours in United States history. Licensure in Comprehensive Social Studies requires an additional 12 hours consisting of: POLS 1110, POLS 1130 or 1150, one ECON course, and LBST 2102-GEOG.

In addition to requirements set by the College of Education, students must have earned a GPA of 2.5 or better in all history and social studies classes for admission to student teaching and ultimately for licensure.

HISTORY MINOR

A minor in History consists of 18 semester hours including HIST 1121; no more than six additional hours at the 1000 level; and at least nine semester hours selected from courses above the 1000 level. The student must achieve a minimum grade point average of 2.0 in all history courses.

HONORS PROGRAM IN HISTORY

The Program. The Department of History offers an Honors Program that consists of three courses: HIST 3797, Honors Methods and Practice; HIST 3798, Honors Seminar; and HIST 3799, Honors Thesis. The thesis hours, HIST 3799, are normally taken in the semester before graduation, but research will have begun after completion of HIST 3797. Students considering Honors in History should note that two of the courses in the Honors sequence fulfill requirements for the major: HIST 3798 will fulfill the requirement for HIST 2100 and completion of an honors thesis earning a grade of C or better will fulfill the requirement for the 4000-level senior seminar.

Admission. Entry into all honors courses is by permission of the department only, and requires a GPA of 3.25 in History and 3.0 overall. Because HIST 3797 and 3798 are taught in sequence, 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 their adviser or a member of the Honors Committee early in their career. Students must also formally apply and be approved for Honors Candidacy by the University

Honors Council, a process which will be initiated as part of the HIST 3797 course.

Certification Requirements. To complete the History Honors Program a student must complete HIST 3797, HIST 3798, HIST 3799, and write an Honors thesis of A quality as judged by a committee of readers; they must have a GPA of at least 3.2 in the Honors courses. Students must also complete the History major with a GPA of at least 3.25 in all history courses and an overall GPA of at least 3.0.

International Studies

INTERDISCIPLINARY STUDIES

Director: Professor Chernotsky

International Studies is an interdisciplinary program within the College of Arts and Sciences. It 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.

BACHELOR OF ARTS

A major in International Studies requires a minimum of 30 semester hours in courses approved for International Studies credit to include: (1) INTL 1101 (Introduction to International Studies); (2) one course from each of the three Advanced Core areas designed to enhance global economic, geo/political, and social/cultural awareness; (3) one required course and four elective courses from within one of the area concentrations offered - **African, Asian, European or Latin American Studies**; (4) INTL 4601 (International Studies Seminar). 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.

Curriculum:

1. **INTL 1101.** Introduction to International Studies (3)
2. **Advanced Core (9).** Select one course from each of the following categories. Other courses may be considered if approved by the Director.
 - a. **Economic Awareness:**
 - ECON 2101 Principles of Macroeconomics (designated international sections only)
 - ECON 3171 International Business Economics

- (Prerequisites ECON 2101, 2102)
- GEOG 3105 Geography of the Global Economy
- HONR 1702 Economic Welfare and International Communities (or LBST 2102-equivalent Honors Section)
- POLS 3151 International Political Economy
- b. **Geo/Political Awareness:**
 - GEOG 1105 Location of Human Activity
 - GEOG 2165 Patterns of World Urbanization
 - HONR 1701 War, Peace, Justice and Human Survival (or LBST 2101-equivalent Honors Section)
 - POLS 3131 Political Development
 - POLS 3135 Terrorism
 - POLS 3152 International Organization
 - POLS 3162 International Law
 - POLS 4163 Model United Nations
- c. **Social/Cultural Awareness:**
 - ANTH 2121 Comparative Family Systems
 - ANTH 2122 Beliefs, Symbols and Rituals
 - ANTH 2123 Women in Cross Cultural Perspective
 - ANTH 3111 Culture Change and Applied Anthropology
 - ANTH 3122 Culture, Health and Disease
 - ANTH 3124 Food, Nutrition and Culture
 - ANTH 4120 Intercultural Communication
 - CJUS 4103 International Criminal Justice
 - COMM 4147 International Public Relations
 - HONR 3702 Human Rights and Social Justice
 - RELS 3131 Islam

3. **Foreign Language.** Students are expected to demonstrate competency in a foreign language appropriate to the area studies concentration selected equivalent to the completion of two courses at the 3000 level or above.

4. **Area Studies Concentration (15).** Each student will select an area of concentration and will 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)

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.

5. **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 the Director. 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.

6. INTL 4601. International Studies Seminar (3)

INTERNATIONAL STUDIES MINOR

Students minoring in International Studies are required to complete 6 hours of introductory course work including:

INTL 1101 Introduction to International Studies (3)

and one of the following:

ANTH 1101 General Anthropology (3)

GEOG 1101 World Regional Geography (3)

POLS 1130 Introduction to Comparative Politics (3)

POLS 1150 Introduction to International Politics (3)

A minor in International Studies requires completion of 26 semester hours (including foreign language) with a GPA of 2.5 or better. Students will select a concentration in **African Studies, Asian Studies, European Studies, Latin American Studies or International Business**. 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 the Director of International Studies.

Curriculum:

1. **Core courses:** Six hours of introductory course work selected from:

INTL 1101 Introduction to International Studies (3)

and one of the following:

ANTH 1101 General Anthropology (3)

GEOG 1101 World Regional Geography (3)

POLS 1130 Introduction to Comparative Politics (3)

POLS 1150 Introduction to International Politics (3)

2. **Foreign Language:** 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.

3. **Area Concentration.** Twelve hours of related course work appropriate to the selected concentration in **African, Asian, European or Latin American Studies** (see list of recommended courses). All courses must be chosen from outside the student's major and from at least two departments.

For the **International Business** concentration, three of the four courses (nine hours) must be selected from the following *in sequence*:

ECON 3171 Int'l Business Economics (3)

MGMT 3274 Int'l Business Processes & Probs (3)

MKTG 3215 Int'l Marketing Management (3)

FINN 3223 Int'l Financial Management (3)

The fourth course (three hours) may be selected from the list above or from among the following non-business courses:

AAAS 3265 African Economic Development (3)

ANTH 4120 Intercultural Communications (3)

POLS 3151 International Political Economy (3)

Note: Enrollment in courses offered from The Belk College of Business Administration is subject to all class standing and prerequisite requirements of The College. These requirements may be waived or modified by permission of the coordinator of the International Business Program or by the Chairperson of the department offering the course.

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 consent of the Director of International Studies and subject to the regular availability of sufficient courses and an appropriate foreign language.

4. **Education Abroad.** 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 the Director.

RECOMMENDED AREA STUDIES COURSES

Note: List subject to additions and deletions. Other courses may be considered, subject to approval of the Director.

African Studies

*INTL	2101	Introduction to African Studies (or HIST 2211; AAAS 2221)
AAAS	2205	African Culture (or ANTH 2111)
AAAS	2206	African Literature, Music and Art
AAAS	2207	Introduction to Pan Africanism
AAAS	3265	African Economic Development
AAAS	4101	Modern African Literature in English
AAAS	4105	Foreign Policy of African States (or POLS 3169)
ANTH	2111	Peoples of Africa (or AAAS 2205)
ENGL	4155	Pan African Literature
HIST	2210	Pre-Colonial Africa
POLS	3143	African Politics
POLS	3169	Foreign Policy of African States (or AAAS 4105)

Asian Studies

*INTL	2201	Introduction to Asian Studies (or HIST 2201)
ARTA	2112	Asian Art
HIST	2200	Asian Civilization
HIST	3161	History of Modern China
HIST	3162	Revolutionary Movements in Modern China
HIST	3165	History of Modern Japan
HIST	3168	Women and the Family in Modern East Asia
HIST	3170	Vietnam: Century of Conflict
JAPN	3209	Japanese Civilization and Culture
POLS	3148	Chinese Politics
POLS	3165	East Asia in World Affairs
RELS	2102	Introduction to Asian Religions
RELS	3154	Hinduism
RELS	3157	Buddhism

RELS	3163	Religious Art & Architecture of India
RELS	3166	Taoism
RELS	3169	Zen Buddhism

European Studies

*INTL	2301	Introduction to European Studies (or HIST 3116)
ARTA	3120	20 th Century Art in Europe
ENGL	3128	British Literature Since WWI
ENGL	4123	The Modern British Novel
FORL	3160	European Cinema
FREN	2209	French Civilization
FREN	3209	France Today
FREN	4003	Studies in French Literature
FREN	4007	Studies in French Culture and Civilization
FREN	4202	Survey of French Literature II
GERM	3030	Studies in German Culture
GERM	3050	Studies in German Literature
GERM	3160	Survey of German Film
GERM	4204	Survey of German Literature II
HIST	2152	European Women's History
HIST	2252	Russian History From 1917 to the Present
HIST	2261	Britain Since 1688
HIST	2271	Modern France
HIST	2281	Twentieth Century Germany
HIST	3140	Irish History
HIST	3147	The Third Reich
HIST	3148	The Holocaust
PHIL	3213	Modern Philosophy
POLS	3141	European Politics
POLS	3153	European Union
RELS	2101	Introduction to Western Religions
RELS	4101	Religion and Modern Thought
RUSS	3203	Russian Civilization and Culture
SPAN	3209	Spanish Civilization and Culture
SPAN	4202	Twentieth Century Spanish Literature

Latin American Studies

*INTL	2401	Introduction to Latin American Studies (or HIST 2207)
AAAS	3190	Political Economy of the Caribbean (or LTAM 3190)
ANTH	2116	Contemporary Latin America (or LTAM 2116)
ANTH	4116	Culture & Conflict in the Amazon (or LTAM 4116)
ARTA	3112	Pre-Columbian Art (or LTAM 3313)
HIST	2206	Colonial Latin America (LTAM 2206)
HIST	3174	Resistance and Adaptation (or LTAM 3274)
HIST	3175	Reform, Riots, Rebellions (or LTAM 3275)
HIST	3176	History of Mexico (or LTAM 3276)
HIST	3177	The Cuban Revolution (or LTAM 3277)
HIST	3178	History of Brazil (or LTAM 3278)
HIST	3179	Authoritarianism in Latin America (or LTAM 3279)
HIST	3260	U.S. and Latin America (or LTAM 3260)
POLS	3144	Latin American Politics (or LTAM 3144)
POLS	3154	Political Economy of Latin America (or LTAM 3154)
POLS	3164	U.S.-Latin American Relations

		(or LTAM 3164)
SPAN	3019	Hispanic Women Writers in English Translation (or LTAM 3319)
SPAN	3029	Cultural Dimension of Business with Spanish-Speaking Countries (or LTAM 3129)
SPAN	3160	Studies in Hispanic Film (or LTAM 3360)
SPAN	3210	Spanish American Civilization and Culture (or LTAM 3310)
SPAN	3212	Introduction to Spanish American Literature (or LTAM 3312)
SPAN	4120	Advanced Business Spanish I (or LTAM 4120)
SPAN	4121	Advanced Business Spanish II (or LTAM 4121)
SPAN	4210	Studies in Spanish American Poetry (or LTAM 4310)
SPAN	4211	Studies in Spanish American Prose Fiction (or LTAM 4311)
SPAN	4212	Studies in Spanish American Theater (or LTAM 4312)

* Required Course for Major

Judaic Studies

INTERDISCIPLINARY STUDIES

Coordinator: Isaac Swift Distinguished Professor Cohen

The interdisciplinary minor in Judaic Studies is designed to cultivate an understanding of the breadth of Jewish culture, history, languages, literature, philosophy, religion, along with the Jewish contributions to global cultures.

JUDAIC STUDIES MINOR

The minor requires the completion of 18 hours of approved courses offered by at least two departments. At least 9 hours must be in courses at the 3000 level or above, normally including RELS 3110, Judaism. Though it is not a requirement, minors are strongly encouraged to take at least 3 hours in ancient or modern Hebrew.

Below is a representative list of courses that have recently been offered. The complete list of approved courses is updated each semester to reflect the actual course offerings of the participating departments and is available from www.uncc.edu/judaicstudies.

ENGL 4002: Women in Literature: Jewish Women Writers; ENGL 4050: Literary Responses to the Holocaust; ENGL 4146: Contemporary Jewish-American Literature; FORL 1201: Biblical Hebrew I; FORL 1202: Biblical Hebrew II; GERM 3050: German Holocaust; HIST 2216: History of the Modern Middle East; HIST 3148: The Holocaust; RELS 2104: Hebrew Scriptures; RELS 3110: Judaism; RELS 3104: Prophecy and Prophetic Literature in Ancient Israel; RELS 3107: Psalms and Wisdom Literature; RELS 4000: Advanced Hebrew; RELS 4107: Early Judaism; RELS 4108: Medieval Judaism; RELS 4109: Modern Judaism; RELS 4110: Contemporary Jewish Thought; WMST 3111: Women in Judaism.

Department of Languages and Culture Studies

Chairperson: Professor Miller; *Associate Chairperson:* Bissière; *Professors:* Doyle, Reimer; *Professors Emeriti:* Bush, Gabriel, Saman, Suther; *Associate Professors:* Bissière, Godev, González, Grote, Hopper, Noiset, Rose, Sandarg, Stephenson, Vance; *Associate Professors Emeritus:* Cernyak-Spatz, Gleaves, Merrill; *Assistant Professors:* Aliaga-Buchenau, Batista, Coria, Culleton, Guzmán, Kato, Kohli, Lottman, Pujol, Youngman; *Assistant Professor Emeritus:* McLeod; *Lecturers:* Koralova, McDermott-Castro, Smith.

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, and literature. The Department offers the Bachelor of Arts degree with majors in French, German, and Spanish, and minors in French, German, Japanese, Russian, Spanish and Western Antiquity and Classical Languages. Certificates are offered in Translating and Business Language. Chinese, Italian, and Portuguese are offered regularly, and Arabic, Greek, Hebrew, and other languages are offered on an irregular basis, on demand.

Students interested in foreign language study are encouraged to explore the following options: (1) a single major in French, German or Spanish, based on the standard liberal arts model, with or without teaching licensure; (2) a double major in a foreign language and another discipline or in two languages; (3) a foreign language minor; (4) a concentration in one or more languages to complement a major in another academic area; and (5) a concentration of courses leading to a Certificate in Translating or Business Language.

Scholarships, Study Abroad, Awards. Scholarships for summer 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 to be eligible, and they must have completed 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 has 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 German American Award for Excellence in German, the Alemannia Award for Excellence in German, and the Karl Gabriel, Robert Reimer, and Susan Cernyak-Spatz Scholarships for Excellence in German and Service to the German Program. For detailed information, contact the Department of Languages and Culture Studies.

BACHELOR OF ARTS

General Requirements for All Majors. All students are required to fulfill General Education requirements described in the *Academic Regulations and Degree Requirements* section of this *Catalog*, in addition to

coursework specified below.

Note: 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 majoring or minoring in Language may not take required courses in the Department on a pass/no credit basis.

Placement. All incoming students must 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 are advised to take a placement exam to help them determine at what level they should begin studying their chosen language.

Writing-intensive courses (W). All foreign language majors must take at least one W course offered within the department. Such courses include, but are not limited to: FORL 3050, FORL 3160, FREN 2209, GERM 3160, RUSS 3050, RUSS 3203, SPAN 2009, SPAN 3009, and SPAN 3019.

Teacher Licensure. The Department, 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. The student seeking licensure to teach a foreign language must fulfill the General Education requirements, the foreign language major, FORL 4200 and 4201, and all courses required for licensure 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 Student Academic Services in the College of Education.

FRENCH. The French major offers two options:

- *Option A.* Requires FREN 2201, 2202, 2207, 3201, 3202, 3203, 3209, 4201, 4202, and two additional courses at the 4000 level. Related work is to be approved by the Department. Students seeking teacher licensure take this option.
- *Option B.* For students with a double major, this option requires FREN 2201, 2202, 2207, 3201, 3202, 3203, 3209, 4201 or 4202, one additional course at the 4000 level, and all courses required for the second major.

GERMAN. A major in German leading to a B.A. degree requires GERM 2201, 2202, 3201, 3202, 3030, 3050 (two courses under different topics), 4203 or 4204, 4010 or 4020, or one additional 3000- or 4000-level German class. German majors must enroll concurrently for one hour of GERM 4050 for each GERM 3230 or 3050 course they take. In addition, 15 hours of related work (or a declared minor), approved by the German language staff, will be required. Candidates for teacher licensure must also take FORL 4200 and 4201 and satisfy requirements specified by the College of Education.

Students majoring in German and seeking a Certificate in Translating in German must also take TRAN 3401,

4402, 4403, and 4404, but may eliminate one GERM 3000 and one GERM 4000 course from the requirements for the major listed above.

SPANISH. A major in Spanish leading to the B.A. degree requires SPAN 2201, 2202, 3201, 3202, 3209 or 3210, 3211, and 3212, plus 12 hours of 4000-level Spanish courses at least one of which must be a literature class. TRAN 4403 may count as a 4000-level Spanish class. Students waived from SPAN 2201 and 2202 must take one additional 3000- or 4000-level class. Native Spanish speakers may take SPAN 3203 in lieu of 3201 and 3202, plus one additional 3000- or 4000-level Spanish course. Only courses in which a student has earned a grade of C or better may count toward the Spanish major.

BACHELOR OF ARTS IN LATIN AMERICAN STUDIES

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.

Documents required for admission. Students applying for admission to the University and acceptance into the Latin American Studies program must submit all documents specified in the current *UNC Charlotte Catalog*. Matriculated students requesting acceptance into the Latin American Studies program must complete the University Declaration of Major form. Students seeking to apply course work 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

Total hours required. The proposed program leading to the Bachelor of Arts degree in Latin American Studies is a 120 semester-hour program, including completion of all General Education requirements and 30 semester hours in courses approved for Latin American Studies credit.

Proportion of courses open only to graduate students. Not applicable.

Grades required. 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.

Amount of credit accepted for transfer. Up to 64 semester 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 semester hours in residence at UNC Charlotte, including the last twelve hours of the major.

Other requirements. Students are required to complete a study or work experience in Latin American Studies. This may be fulfilled through participation in a formal study abroad program, through foreign-based work, service or internship activities; through an internship in the United States involving work with Latino populations; or through completing 6 credit hours in a second foreign language current in Latin America such as Spanish, Portuguese, French, or 3 hours in an indigenous language such as Yucatec Maya, Náhuatl, or Quechua. Academic credits earned may be applied to the requirements of the major. At the discretion of the Program Coordinator, prior international experience may be considered.

Language and/or research tool requirements. 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.

Time Limit for Completion of Major. Not applicable.

CURRICULUM FOR MAJORS

Introductory Course (3 hours):

LTAM 1100 Introduction to Latin America

A minimum of two courses from each of the following three perspectives (total of 24 hours):

Economy and Society (6-9 hours)

LTAM 2116 (crosslisted with ANTH 2116)
Contemporary Latin America (3)
LTAM 3129 (crosslisted with SPAN 3029)
Cultural Dimension of Doing Business with Spanish-Speaking Countries (3)
LTAM 3144 (crosslisted with POLS 3144)
Latin American Politics (3)
LTAM 3154 (crosslisted with POLS 3155)
Political Economy of Latin America (3)
LTAM 3164 (crosslisted with POLS 3164)
US-Latin American Relations (3)
LTAM 3190 (crosslisted with AAAS 3190)
Political Economy of the Caribbean (3)
LTAM 4116 (crosslisted with ANTH 4116)
Culture and Conflict in the Amazon (3)
LTAM 4120 (crosslisted with SPAN 4120)
Advanced Business Spanish I (3)
LTAM 4121 (crosslisted with SPAN 4121)
Advanced Business Spanish II (3)

Historical Context (6-9 hours) To include at least one class each on pre-1800 and post-1800 periods.

Pre-1800:

LTAM 2206 (crosslisted with HIST 2206)
Colonial Latin America (3)
LTAM 2252 (crosslisted with ANTH 2152)
New World Archaeology (3)
LTAM 3274 (crosslisted with HIST 3174)
Resistance and Adaptation in Colonial Latin America (3)
LTAM 3275 (crosslisted with HIST 3175)
Reform, Riots and Rebellions in Colonial Spanish America (3)

Post-1800:

- LTAM 2207 (crosslisted with HIST 2207)
Modern Latin America (3)
- LTAM 3260 (crosslisted with HIST 3160) The
United States and Latin America (3)
- LTAM 3276 (crosslisted with HIST 3176)
History of Mexico (3)
- LTAM 3277 (crosslisted with HIST 3177)
The Cuban Revolution (3)
- LTAM 3278 (crosslisted with HIST 3178)
History of Brazil (3)
- LTAM 3279 (crosslisted with HIST 3179)
Authoritarianism in Latin America (3)

Literature and the Arts (6-9 hours)

- LTAM 3309 (crosslisted with SPAN 3009)
Masterpieces of Hispanic Literature in English
Translation (3)
- LTAM 3310 (crosslisted with SPAN 3210)
Spanish American Civilization and Culture (3)
- LTAM 3312 (crosslisted with SPAN 3212)
Introduction to Spanish American Literature (3)
- LTAM 3313 (crosslisted with ARTA 3112)
Pre-Columbian Art (3)
- LTAM 3319 (crosslisted with SPAN 3019) Hispanic
Women Writers in English Translation (3)
- LTAM 3360 (crosslisted with SPAN 3160)
Studies in Hispanic Film (3)
- LTAM 4302 (crosslisted with AAAS 4102)
Caribbean Literature in English (3)
- LTAM 4310 (crosslisted with SPAN 4210)
Studies in Spanish American Poetry (3)
- LTAM 4311 (crosslisted with SPAN 4211)
Studies in Spanish American Prose Fiction (3)
- LTAM 4312 (crosslisted with SPAN 4212)
Studies in Spanish American Theater (3)
- LTAM 4350 (crosslisted with SPAN 4050)
Topics in Latin American Literature (3)

Additional Stipulations. Among the 24 hours required, no more than nine (9) hours should be taken from the faculty members of any one department if any of those credits will also be counted toward another major or minor. Exceptions may be approved by the Director of Latin American Studies.

Students may take LTAM 2000: Topics in Latin American Studies; or LTAM 3000: Advanced Topics in Latin American Studies to help fulfill these requirements. As the topics of these courses vary, students may repeat them for credit.

The Director of Latin American Studies will determine which perspective(s) a given section of LTAM 2000 or LTAM 3000 fulfills.

Capstone Seminar. *LTAM 4600 Seminar in Latin American Studies* 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 an elective requirement, and the second course will fulfill the capstone requirement.

Foreign Language. 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.

Experiential Learning. Students are required to complete a study or work experience in Latin American Studies. This may be fulfilled through participation in any one of the following:

A formal study-abroad program of at least 45 contact hours equaling three hours of academic credit.

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.

Course work in another Latin American language in addition to the foreign language requirement above. This option may be fulfilled by completing 6 credit hours in Spanish, Portuguese, or French. Students may also elect to complete 3 hours of 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 the Program Coordinator, prior life, study, or work experience may be considered in exempting a student from this requirement.

Language Intensive Option. An optional credential will be awarded for completing one of the following in addition to the degree requirements above:

- a) Spanish (or, if available, Portuguese) minor;
- b) Certificate in Translating or Certificate in Business Spanish; OR
- c) 2nd major Latin American language (Spanish or Portuguese) through Intermediate level

Honors in Latin American Studies. 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 University 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 three 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 an "A" is acceptable for curricular honors. Students may also obtain honors through the University honors program (details available at www.uhonors.uncc.edu).

CURRICULUM FOR MINORS

Introductory Course (3 hours)

LTAM 1100: Introduction to Latin America (3)

A minimum of one course from each of the following perspectives (15 hours, or 12 hours + LTAM 4600):

Economy and Society (3-6 hours)

- LTAM 2116 (crosslisted with ANTH 2116)
Contemporary Latin America (3)
- LTAM 3129 (crosslisted with SPAN 3029)
Cultural Dimension of Doing Business
with Spanish-Speaking Countries (3)
- LTAM 3144 (crosslisted with POLS 3144)
Latin American Politics (3)
- LTAM 3154 (crosslisted with POLS 3154)
Political Economy of Latin America (3)
- LTAM 3164 (crosslisted with POLS 3164)
US-Latin American Relations (3)
- LTAM 3190 (crosslisted with AAAS 3190)
Political Economy of the Caribbean (3)
- LTAM 4116 (crosslisted with ANTH 4116)
Culture and Conflict in the Amazon (3)
- LTAM 4120 (crosslisted with SPAN 4120)
Advanced Business Spanish I (3)
- LTAM 4121 (crosslisted with SPAN 4121)
Advanced Business Spanish II (3)

Historical Context (3-6 hours)

- LTAM 2206 (crosslisted with HIST 2206)
Colonial Latin America (3)
- LTAM 2207 (crosslisted with HIST 2207)
Modern Latin America (3)
- LTAM 2252 (crosslisted with ANTH 2152)
New World Archaeology (3)
- LTAM 3260 (crosslisted with HIST 3160)
The United States and Latin America (3)
- LTAM 3274 (crosslisted with HIST 3174)
Resistance and Adaptation in
Colonial Latin America (3)
- LTAM 3275 (crosslisted with HIST 3175)
Reform, Riots and Rebellions in
Colonial Spanish America (3)
- LTAM 3276 (crosslisted with HIST 3176)
History of Mexico (3)
- LTAM 3277 (crosslisted with HIST 3177)
The Cuban Revolution (3)
- LTAM 3278 (crosslisted with HIST 3178)
History of Brazil (3)
- LTAM 3279 (crosslisted with HIST 3179)
Authoritarianism in Latin America (3)

Literature and the Arts (3-6 hours)

- LTAM 3309 (crosslisted with SPAN 3009)
Masterpieces of Hispanic Literature in
English Translation (3)
- LTAM 3310 (crosslisted with SPAN 3210)
Spanish American Civilization and Culture (3)
- LTAM 3312 (crosslisted with SPAN 3212)
Introduction to Spanish American Literature (3)
- LTAM 3313 (crosslisted with ARTA 3112)
Pre-Columbian Art (3)
- LTAM 3319 (crosslisted with SPAN 3019)
Hispanic Women Writers in English Translation

- LTAM 3360 (crosslisted with SPAN 3160)
Studies in Hispanic Film (3)
- LTAM 4302 (crosslisted with AAAS 4102)
Caribbean Literature in English (3)
- LTAM 4310 (crosslisted with SPAN 4210)
Studies in Spanish American Poetry (3)
- LTAM 4311 (crosslisted with SPAN 4211)
Studies in Spanish American Prose Fiction (3)
- LTAM 4312 (crosslisted with SPAN 4212)
Studies in Spanish American Theater (3)
- LTAM 4350 (crosslisted with SPAN 4050)
Topics in Latin American Literature (3)

Additional Stipulations. Among the 15 hours required, not more than six (6) hours should be taken from the members of any one department.

Students may take LTAM 2000: Topics in Latin American Studies; and LTAM 3000: Advanced Topics in Latin American Studies to help fulfill these requirements. As the topics of these courses vary, students may repeat them for credit.

The Latin American Studies Steering and Curriculum Committee will determine which perspective(s) a given section of LTAM 2000 or LTAM 3000 fulfills. Each semester, a list of Latin American Studies elective courses sorted by the above perspectives will be posted on the program website at www.coas.uncc.edu/latinamerican.

Foreign Language. 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.

FOREIGN LANGUAGE MINORS

FRENCH. A minor in French requires FREN 2201, 2202, 2207, 3201, 3202, 3203, and 3209. Students who wish to count FREN 2210 toward the minor may take it in lieu of FREN 2207 or 3203.

GERMAN. A minor in German requires 20 hours, as follows: GERM 2201, 2202, 3201, 3202 and six additional hours at the 3000 or 4000 level. A student waived from GERM 2201 and/or 2202 must take the equivalent number of hours in 3000- or 4000-level courses.

JAPANESE. A minor in Japanese requires six courses and at least 20 hours above the 1202 level, as follows: JAPN 2201, 2202, 3201, 3202, 3209, and 3800.

RUSSIAN. A minor in Russian consists of seven courses above the 1202 level, as follows: RUSS 2201, 2202, 3201, 3050, 3202, 3203, and 3800.

SPANISH. A minor in Spanish requires 21 hours, as follows: SPAN 2201; 2202 or 2210; 3201 or 3202; 3209 or 3210; 3211 or 3212; and six additional hours at the 3000 or 4000 level. TRAN 4403 may count as a 4000-level Spanish class. Students waived from SPAN 2201 must take one additional 2000-, 3000-, or 4000-level class. Native Spanish speakers must take SPAN 3203 in lieu of 3201 or 3202.

MINOR IN WESTERN ANTIQUITY AND CLASSICAL LANGUAGES

The minor requires 15-24 semester hours depending upon student performance on the language proficiency exam. Successful completion of the minor requires GREK 2201 or LATN 2101, or three semesters of Greek and Latin; and four courses selected from at least three of the following:

- (1) Ancient Material Culture: ARTS 3111 Ancient Art, ARCH 2111 Ancient Architecture;
- (2) Ancient History: HIST 1115 The Ancient World, HIST 3102 History of Rome, HIST 3101 History of Greece, ANTH 3152 Early Civilizations;
- (3) Greek and Roman Literature: ENGL 4210 Greek and Roman Drama, RELS 3101 Greek Myths and Religion,
- (4) Greek and Roman Thought: POLS 3171 History of Classical Political Philosophy, PHIL 3211 Ancient Philosophy, PHIL 3212 Medieval Philosophy. Other courses may be approved by the classics coordinator.

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 course work 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 at least a grade of B. Majors in any field are welcome.

CERTIFICATE IN TRANSLATING

A Certificate in Translating, CT, in the French-English, German-English, or Spanish-English sequence is earned by completion of TRAN 3401 F/G/S, 4402 F/G/S, 4403 F/G/S and 4404 F/G/S, with a grade of C or better in each course. The 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, Spanish, International Studies, or International Business. All courses for the CT involve, but are not limited to, translating into English from the source text.

Department of Mathematics and Statistics

Chairperson: Dow; *Associate Chairperson:* Kazemi; *Coordinator of Graduate Program:* Avrin; *Coordinator of Undergraduate Program:* Harris; *Coordinator of Mathematics Education:* Cifarelli; *Professors:* Wei Cai, Xingde Dai, Diao, Houston, Klibanov, Lambert, T. G. Lucas, T. R. Lucas, Molchanov, Oh, Quinn, Shafer, Sonin, Stavrakas, Vainberg, Weinstock, Wihstutz, Zhu; *Associate Professors:* Anderson, Burnap, Zongwu Cai, Cifarelli, Dmochowski, Reiter, Rothe, Royster, Sáenz-Ludlow, Sun, Zhang; *Assistant Professors:* Biswas, Ming Dai, Godin, Heteyi, Kawczak, Nabors, Sundaram, Mingxin Xu; *Lecturers:* Eagle, Funderburk, Hill, Reznikova, Shaban; *Bonnie E. Cone Distinguished*

Professor in Teaching Emerita: Leiva; *Professor Emeriti:* Nixon, Papadopoulos, Schoeps, Yushkevich; *Emeriti:* Roth, Wright, Stewart.

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.

The Department offers majors leading to the B.S. and B.A. degrees as well as a minor in Mathematics. Students considering a major in Mathematics should take at least four years of high school mathematics, including at least one year beyond Algebra II. (Only well-prepared students will be permitted to enroll in MATH 1241 without first taking MATH 1103.) While excessive specialization at the undergraduate level is not encouraged, students may choose their upper-division mathematics electives to emphasize statistics, operations research or applied mathematics. Students graduating with a bachelor's degree in Mathematics should find themselves well prepared for a career in business or industry, especially if they have chosen to concentrate on some of the more applied areas in the program and have selected related work in an area of application such as economics, business or computer science. Students preparing for careers in industry or business should consider participating in the Department's Cooperative Education Program. Students completing the B.S. curriculum will be well prepared for graduate work in the mathematical sciences.

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 tracks in General Mathematics, Applied Mathematics, and Applied Statistics.

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 MATH 3181, 4109, MAED 3103, 3105, and 3252, together with a number of education related courses. Before the end of the sophomore year, students should obtain an application for formal admission to the teacher education program in the Department of Middle, Secondary, and K-12 Education. Detailed information is available in the Mathematics Department office. Licensure applications are the responsibility of the student and the Office of Teacher Education, Advising, and Licensure in the College of Education.

BACHELOR OF ARTS

A major in Mathematics for the B.A. degree consists of a minimum of 34 hours of approved mathematics, operations research or statistics courses, including MATH 1241, 1242, 2241, 2242, 2164, 2171, 3163, and 3688; 12 additional hours of approved courses numbered 3000 or above; and MATH 3689 or 3791.

A major in Mathematics also requires ITCS 1214 and related work consisting of 18 hours of approved courses in an area outside the Mathematics Department. All students

must meet the General Education requirements of the University.

Concentration in Actuarial Science

A Bachelor of Arts degree in Mathematics with an option in Actuarial Science consists of a minimum of 34 hours of mathematics and statistics courses including MATH 1241, 1242, 2241, 2242, 2164, 2171, 3163, 3688, and 3689. Upper-division courses must include MATH 3122, 3123, 3128, and 3129. It is strongly recommended that students also take STAT 3110 or 3150.

The program also requires ITCS 1214 and at least 18 hours of related work consisting of ACCT 2121, 2122, ECON 1201, 1202, FINN 3120, and 3271. In addition, it is strongly recommended that students take FINN 3272 or 3273. All students must meet the General Education requirements of the University.

Concentration in Statistics

A Bachelor of Arts degree in Mathematics with a Concentration in Statistics consists of a minimum of 34 hours of mathematics and statistics courses including MATH 1241, 1242, 2241, 2242, 2164, 3688, 3689, STAT 2122, STAT 2223 and STAT 3110. Upper level courses must include three courses from STAT 3140, 3150, 3160, and 4116. Optionally, STAT 2122/STAT 2223 may be replaced by STAT 3122/STAT 3123 or by STAT 3128/STAT 3123.

A Bachelor of Science degree in Mathematics with a Concentration in Statistics consists of a minimum of 40 hours of mathematics and statistics courses including MATH 1241, 1242, 2241, 2242, 2164, 3688, 3689; STAT 2122 and STAT 3110. Upper level courses must include MATH 3141, STAT 3122, 3123, and any three courses from STAT 3140, 3150, 3160, and 4116.

Both programs require ITCS 1214 and at least 18 hours of approved related courses in an area outside the Mathematics Department.

It is strongly recommended that students in the Statistics Concentration Program take ITCS 3160, Data Design and Implementation.

BACHELOR OF SCIENCE

A major in Mathematics for the B.S. degree consists of a minimum of 40 semester hours of approved MATH, STAT or OPRS courses. In addition to the requirements for the B.A. degree, the major in Mathematics for the B.S. degree requires the completion of six additional hours of approved mathematics, operations research, or statistics courses numbered 3000 or above (exclusive of MATH 3163), as well as a minimum of 11 hours of science courses. Upper-division courses must include MATH 3141, 3142, and at least one course from among STAT 3123 and MATH 4163, 4164, 4181, and 5143.

Note: Students applying for either the B.A. or B.S. degree in Mathematics must have a grade point average 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.

MATHEMATICS MINOR

A minor in Mathematics requires 18 semester hours including MATH 1241 and 1242; at least one of MATH 2164 and 2171; one additional course from MATH 2241, 2242, 2164 and 2171, STAT 2122, or any three-hour MATH, STAT, or OPRS 3000 or above; two three-hour MATH, STAT, or OPRS course numbered 3000 or above; and an average GPA of at least 2.0 in these courses.

MINOR IN ACTUARIAL MATHEMATICS

A minor in Actuarial Mathematics requires MATH 1241, 1242, 2241, 2164, STAT 3122 and STAT 3123; and a minimum average GPA of 2.0 in these courses.

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 as soon as possible after completing Calculus I, II, III and Linear Algebra, and the second examination after completing Probability and Statistics II. Further examinations cover material contained in MATH 3176, OPRS 3111, 3113, and STAT 5123, 5124.

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.

Admission. Entrance to the Mathematics Department Honors Program is granted by the Mathematics Department, based on the following minimum requirements: (1) junior or senior standing; (2) at least 20 hours in mathematics, including MATH 1241, 1242, 2241, 2171, 2164, and 3163; and (3) a grade point average of not less than 3.0 in mathematics courses and in all University courses.

Students must apply to the Mathematics Department 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 University 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 better; (2) a grade point average of 3.25 or better in all mathematics, operations research and statistics courses and a GPA of 3.5 or better 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 better, culminating in

an Honors thesis approved by the Mathematics Department; and (4) recommendation by the Mathematics Department to the University 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.

COOPERATIVE EDUCATION PROGRAM

A student may participate in the Mathematics Cooperative Education Program in either the parallel or alternate track. The parallel track combines academic study and 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 interested in participating in the program should contact the Coordinator of Undergraduate Programs in the Department of Mathematics or the University Career Center for information.

Department of Military Science

Professor (Mil.): McCall; Assistant Professor (Mil.): Hale

Participation in Army ROTC enhances the education of both men and women by providing unique leadership and management training, along with practical experience in these areas. It helps students develop many of the qualities basic to success in the Army, or in civilian careers. Students earn a college degree and an officer's commission at the same time. The program is designed to complement the student's major area of study; participation in Army ROTC is compatible with all major areas of study. The Basic Course and the Advanced Course comprise the Military Science curriculum.

BASIC COURSE

The Basic Course is usually taken during the freshman and sophomore years. It is open to all students and incurs no military obligation. Topics include management principles, leadership development, national defense organization, land navigation, small unit tactics, survival techniques, military courtesy, and physical training. Uniforms and textbooks are provided at no cost to students. Students unable to attend the Basic Course, may still qualify for the Advanced Course by attending a paid four-week summer Leader's Training Course at Fort Knox, Kentucky, following their sophomore year. Placement credit is also available for veterans, members of the reserve components, and Junior ROTC participants.

ADVANCED COURSE

The Advanced Course provides instruction in military history, advanced tactics, techniques of effective

leadership, and military ethics and professionalism. It is normally taken during the junior and senior years. Students successfully completing the Basic Course, who have demonstrated the potential to become officers and meet Army physical and academic standards, are eligible to enroll in the Advanced Course. Students receive a monthly tax-free stipend of \$350 per academic year as junior and \$400 per month during their senior year. Students are required to attend a paid four-week summer Leader Development and Assessment Course at Fort Lewis, Washington, between their junior and senior years. In addition to Military Science courses, students must complete HIST 2120 American Military History. Nursing students may enter the Advanced Course without Basic Course credit.

Nursing Summer Camp. Nursing students enrolled in the Advanced Course attend a two-part summer camp between the junior and senior years. This consists of four weeks of Leader Development and Assessment Course at Fort Lewis, Washington, followed by three weeks of practical nursing training. The nurse intern training may be at Fort Lewis, Washington or any other major Army Medical Center nationwide.

SCHOLARSHIP PROGRAM

Two-, three-, and four-year scholarships are awarded on a competitive basis, providing full tuition and educational fees, a specified amount for books and supplies, and a tax-free tiered stipend of \$250, \$300, \$350 or \$400 per academic month. Four-year scholarships are available to students who apply while in high school or prior to enrollment. Students do not have to be enrolled in Army ROTC to apply and incur no obligation by applying. Application timeframe is December to February each year. Special consideration is given to students in nursing, engineering, and physical sciences.

COMMISSION REQUIREMENTS

To obtain a commission in the Army, Army National Guard or Army Reserve, a student must successfully complete the Advanced Course, be recommended by the Professor of Military Science, and complete work leading to at least a baccalaureate degree.

Department of Music

Chairperson: Professor Lumpkin; *Professors:* Bulow, Dillard; *Associate Professors:* Marks, Mosley, Price; *Assistant Professors:* Grymes, Haldeman, Savage, Sullivan; *Instructor:* Campbell; *Lecturer:* Dior

The Department of Music offers courses for majors and non-majors ranging from theory, music appreciation, and private lessons (applied music) to the History of Rock Music and various jazz courses. Several specialty courses are offered, such as foreign language diction for singers, literature for the guitar, composition, and music history. Students gain performing experience through a variety of large and small ensembles, either instrumental or vocal, that are offered for academic credit.

A major in Music leading to the Bachelor of Music (B.M.) degree offers the student professional training in music performance or music education. The B.A. in Music degree allows the student to study music in a more traditional liberal arts context. The Master of Arts in Teaching: Music degree is offered through the College of Education, and is available to those qualified students who either desire teaching certification in music or wish to earn the Master's degree.

Most music graduates move directly into the profession as performers or teachers, while many opt for advanced training in graduate programs or apprenticeships with professional organizations. Some music majors use their undergraduate training as a foundation for other professions, such as arts management, various private businesses, or church music work.

All music courses and most performances are held in the new Robinson Hall for the Performing Arts, a state-of-the-art facility that is shared with the Department of Dance and Theatre. This new facility features beautifully designed performance and rehearsal venues, ample classroom space, practice rooms (including two "V" rooms with variable acoustics), faculty studios, and several specialized instructional spaces, including Listening and Viewing and Music Technology labs.

Each student majoring in Music, regardless of degree plan or concentration area, is required to perform in an appropriate major ensemble each semester enrolled*, perform at least once a semester in a Wednesday recital*, attend seven additional concerts each semester*, take applied music lessons each semester*, and pass all portions (keyboard and sight-singing skills) of the Sophomore Screening. Please review the departmental Student Handbook for details.

**These requirements are not applicable for music education majors during the semester they are enrolled in Student Teaching or for B.A. in Music majors during the semester they are enrolled in Senior Project.*

BACHELOR OF MUSIC (B.M.) IN PERFORMANCE

The Bachelor of Music in Performance degree consists of 78 semester hours of music including 18 hours of music theory, 6 hours of music history, 16 hours of private instruction on the student's principal instrument or voice, courses in pedagogy, conducting, and 8 semesters of major ensemble participation. A junior recital (20-30 minutes) and a senior recital (at least 50 minutes) must be presented; authorization to present a recital may be granted only following a hearing by the music faculty. General education requirements of 40 hours and 3 elective hours make up the remainder of the 121 credits needed for graduation.

BACHELOR OF MUSIC (B.M.) IN MUSIC EDUCATION

The Music Education track of the Bachelor of Music degree is designed to prepare the student for a career as a public or private school music teacher and results in K-12 licensure in the State of North Carolina.

The program is divided into three concentration areas: Instrumental, Vocal, and General Music. This is a four-year program requiring 124 credits. It requires 61 hours of

music and no elective hours for students with an Instrumental Music Concentration, 60 hours of music and 1 hour of electives for the Vocal Concentration, and 58 hours of music and 3 hours of electives for the General Music Concentration. All students will take 29 hours in education/licensure and 34 hours in General Education. For specific course requirements of the Music Education track, refer to the *Department of Music Student Handbook*.

Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

BACHELOR OF ARTS (B.A.) IN MUSIC

The Bachelor of Arts in Music degree consists of a core of 35 hours in music, including 12 hours of music theory, 6 hours of music history, 6 hours of music electives, a Senior Project and applied music, ensemble, proficiency and recital attendance requirements. Please review the departmental *Student Handbook* for details. The B.A. in music degree is designed for students who wish to pursue the study of music in a traditional liberal arts environment and who do not desire careers in public school teaching or professional performance. The degree offers maximum flexibility for structuring a course of study characterized by imagination and possibilities for integrating areas of interest.

MASTER OF ARTS IN TEACHING: MUSIC

The Master of Arts in Teaching: Music Education (K-12) degree program, offered in conjunction with the College of Education, consists of two separate "phases." Completion of Phase One/*Fast-track* (minimum of 17 hours), and of any required deficiency courses in Music, results in "A" Licensure in one of three concentrations in K-12 music education: general music (K-6 emphasis); Vocal Music (6-12 emphasis) or Instrumental Music (6-12 emphasis). Additional completion of Phase Two (minimum of 21 hours) results in the awarding of the Master of Arts in Teaching: Music Education (K-12) degree. For specific course requirements of each phase of the program, please refer to the websites of either the Department of Music (www.music.uncc.edu) or the College of Education (<http://education.uncc.edu/coe>).

Department of Philosophy

Chairperson: Vacant; *Bonnie E. Cone Distinguished Professor in Teaching:* Lincourt; *Mecklenburg County Medical Society Distinguished Professor in Healthcare Ethics:* Tong; *Professors:* Gay, Fishman, *Professors Emeritus:* Kaplan, Shumaker; *Associate Professors:* Croy, Presler, Souffrant, Toenjes; *Assistant Professor:* Coleman; *Lecturers:* Caste, Eldridge, Tristan.

Website: www.uncc.edu/philoso.

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 or professional school. Given the department'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.

BACHELOR OF ARTS

A major in Philosophy leading to a B.A. degree consists of a minimum of 30 semester hours in philosophy, at least 15 of which are earned at UNC Charlotte with a grade of C or better, with no more than nine hours below the 3000 level counting toward the major. A GPA of 2.5 is required for all philosophy courses applied to the major. 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 accepted. Non-native speakers of English may complete the foreign language requirement by passing ENGL 1101 and ENGL 1102 or the equivalent. Students must elect a concentration in either Traditional or Applied Philosophy.

Concentration in Traditional Philosophy

Students who select a concentration in Traditional Philosophy are required to take PHIL 2101 (Introduction to Philosophy), 2105 (Deductive Logic), 3211 (Ancient), 3213 (Modern), and 3214 (Contemporary). Of the remaining 15 hours, at least nine must be in a traditional historical period or figure (e.g., Medieval, American, Introduction to Political Philosophy, Plato, Descartes) or in a traditional problem area (e.g., Aesthetics, Ethics, Metaphysics, Feminist Philosophy, Social and Political Philosophy). A list showing the courses classified as "traditional" and "applied" is available in the Philosophy Department.

Concentration in Applied Philosophy

Students who select a concentration in Applied Philosophy are required to take PHIL 2101 (Introduction to Philosophy), either 1105 (Critical Thinking) or 2105 (Deductive Logic), and at least two courses in a traditional historical period, figure or problem. Of the remaining 18 hours, at least 12 are to be selected from courses in applied philosophy (e.g., Business Ethics, Philosophy in and of Literature, Healthcare Ethics). These courses may represent a theme in which the student has a particular interest and be planned in consultation with the student's advisor. The selected theme will reflect the student's interests in a particular area which may coincide with a second major. This theme may involve requirements outside of the Philosophy Department, but only philosophy courses may be counted toward the 30 hours required for the major. A list showing the courses classified as "traditional" and "applied" is available in the Philosophy Department.

PHILOSOPHY MINOR

A minor in Philosophy consists of 15 semester hours in philosophy, at least nine of which are earned at UNC Charlotte with a grade of C or better, with no more than six hours below the 3000 level counting toward the minor. Students who elect the minor are required to take the following courses and types of courses: PHIL 2101; one course in Logic (PHIL 1105, 2105, or 3235); and two courses in a traditional historical period, figure, or problem area. Traditional historical periods or figures include History of Ancient, Medieval, Modern, Contemporary, and American Philosophy, Introduction to Political Philosophy, Plato, and Descartes. Traditional problem areas include Aesthetics, Ethics, Metaphysics, Feminist Philosophy, and Social and Political Philosophy. A list showing the courses classified as "traditional" and "applied" is available in the Philosophy Department.

HONORS PROGRAM IN PHILOSOPHY

Students seeking a greater academic challenge may contact the Department Chair with a request to pursue the Honors Track within the philosophy major. Honors work may be undertaken as early as the first semester a student is enrolled at the University. Graduation with Honors will be noted on the student's transcript and the phrase "Honors in Philosophy" inscribed on the student's diploma.

To qualify for graduation with Honors in Philosophy a student must receive the recommendation of the Honors Committee in Philosophy. The Honors Committee will consider as candidates for Honors in Philosophy students who have completed the standard philosophy major and the following requirements: a) two three-hour courses chosen by the student from University Honors courses (taken under the LBST designation); b) a grade of A for four hours of honors thesis research (which count toward the 30-hour major requirement); c) oral presentation of the Honors Thesis before the Philosophy Department Honors Committee, other faculty, and students; d) GPA of at least 3.5 in all Philosophy courses counted toward the major; and e) GPA of at least 3.2 for all departmental and University Honors courses submitted towards graduation with Honors.

Department of Physics and Optical Science

Chairperson: Professor Farahi; *Professors:* Corwin, Fiddy, Raja; *Professors Emeritus:* Almeida, Pollak, Vermillion, Wernitz; *Associate Professors:* Aktas, Melton, Moyer, Trammell, Tyson; *Associate Professors Emeritus:* Mayes, Oberhofer, Simpson; *Assistant Professors:* Astratov, Dancy, Davies, Gbur, Her, Naeini, Suleski; *Adjunct Professors:* Buckland, Mosier, Splinter, Svenson, Tsu.

The Department offers programs leading to the Bachelor of Arts and Bachelor of Science degrees. The Department offers options in astrophysics, optical science, and teacher licensure. Students majoring in physics are prepared to enter a variety of technical fields, attend medical school, teach in high school, or to attend graduate school. Students who graduate with a bachelor's degree in physics are prepared for graduate study in physics, astronomy, engineering, optics, computer science, or the medical field.

Physics students at UNC Charlotte have special opportunities. Each physics student has the chance to work with an individual faculty mentor of his or her choice on individual research projects. Students are also given individual attention in upper division courses and advanced laboratory courses.

BACHELOR OF ARTS

A major in Physics leading to the B.A. degree consists of at least 33 semester hours of physics with an average of C or better. The 33 hours of physics must include eight hours in an introductory sequence of either PHYS 1101, 1102, 1101L, and 1102L or PHYS 2101, 2102, 2101L, and 2102L. The remaining 25 hours must include PHYS 1000, PHYS 3101, PHYS 3121, PHYS 3141, PHYS 4231, PHYS 4241, either PHYS 3282 or PHYS 3283, plus six additional hours at the 3000-4000 level. Also required are CHEM 1251, 1251L and MATH 1241, 1242, 2171, 2241, and 2242. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 33-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee. Freshmen should complete MATH 1241 before the beginning of their second year.

BACHELOR OF ARTS: SECONDARY TEACHER LICENSURE OPTION

Students preparing to teach high school physics may become licensed by earning the B.A. Degree: Secondary Teacher Licensure Option. A major in Physics with this option consists of a minimum of 120 semester hours that fulfill the general degree requirements of the University and that include at least 33 semester hours in physics with an average grade of C or better. The 33 hours of physics must include eight hours in an introductory sequence of either PHYS 1101, 1102, 1101L, and 1102L or PHYS 2101, 2102, 2101L, and 2102L. The remaining 25 hours must include PHYS 1000, PHYS 3101, PHYS 3121, PHYS 3141, PHYS 4231, PHYS 4241, PHYS 3282, PHYS 3283, plus three additional hours at the 3000-4000 level. Also required are CHEM 1251, 1251L, MATH

1241, 1242, 2171, 2241, and 2242, and other courses specified by the Department of Middle, Secondary, and K-12 Education. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 33-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee. Freshmen should complete MATH 1241 before the beginning of their second year.

A schedule to complete the Secondary Teacher Licensure Option within a 4-year period has little flexibility due to the large number of required courses. The student should obtain a SUGGESTED SCHEDULE from the Physics and Optical Science Department, make arrangements for an advisor in the Department of Middle, Secondary, and K-12 Education, and obtain an up-to-date listing and schedule for required education courses. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

BACHELOR OF SCIENCE

A major in Physics leading to the B.S. degree consists of at least 45 semester hours of physics with an average of C or better. The 45 hours of physics must include eight hours in an introductory sequence of PHYS 2101, 2102, 2101L, and 2102L. Under special circumstances, and with the approval of the Undergraduate Studies Committee, PHYS 1101, 1102, 1101L, and 1102L may be substituted for the PHYS 2101-2102 sequence. The remaining 37 hours must include PHYS 1000, PHYS 3101, PHYS 3121, PHYS 3141, PHYS 3151, PHYS 3282, PHYS 3283, PHYS 4231, PHYS 4232, PHYS 4241, and at least nine additional hours at the 3000-4000 level. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 45-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee. Also required are CHEM 1251, 1251L, ITCS 1214, MATH 1241, 1242, 2171, 2241, and 2242. Freshmen should complete MATH 1241 before the beginning of their second year. Students planning for graduate study in physics are strongly advised to take PHYS 4242 as part of their 3000-4000 level elective hours.

BACHELOR OF SCIENCE WITH A CONCENTRATION IN ASTROPHYSICS

A major in Physics leading to the B.S. degree with a concentration in astrophysics option consists of at least 45 semester hours of physics with an average of C or better. The 45 hours of physics must include eight hours in an introductory sequence of PHYS 2101, 2102, 2101L, and 2102L. Under special circumstances, and with the approval of the Undergraduate Studies Committee, PHYS 1101, 1102, 1101L, and 1102L may be substituted for the PHYS 2101-2102 sequence. The remaining 37 hours must include PHYS 1000, PHYS 3101, PHYS 3121, PHYS 3141, PHYS 3151, PHYS 3160, PHYS 3161, PHYS 3282, PHYS 3283, PHYS 4231, PHYS 4241, PHYS 4242, and at least three additional hours at the 3000-4000 level. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 45-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee. Also required are CHEM 1251, 1251L, ITCS 1214, MATH 1241, 1242, 2171, 2241, and 2242. Freshmen should complete MATH 1241 before the beginning of their second year.

BACHELOR OF SCIENCE WITH A CONCENTRATION IN OPTICAL SCIENCE

A major in Physics leading to the B.S. degree with a concentration in optical science consists of at least 45 semester hours of physics and engineering with an average of C or better. The 45 hours must include eight hours in an introductory sequence of PHYS 2101, 2102, 2101L, and 2102L. Under special circumstances, and with the approval of the Undergraduate Studies Committee, PHYS 1101, 1102, 1101L, and 1102L may be substituted for the PHYS 2101-2102 sequence. The remaining 37 hours must include PHYS 1000, PHYS 3101, PHYS 3121, PHYS 3141, PHYS 3282, PHYS 4231, PHYS 4232, PHYS 4241, PHYS 4271, PHYS 4281, at least six additional hours at the 3000-4000 level, and ECGR 4125. Also required are CHEM 1251, 1251L, ITCS 1214, MATH 1241, 1242, 2171, 2241, and 2242. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 45-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee. Freshmen should complete MATH 1241 before the beginning of their second year.

BACHELOR OF SCIENCE: SECONDARY TEACHER LICENSURE OPTION

Students preparing to teach high school physics may become licensed by earning the B.S. Degree: Secondary Teacher Licensure Option. The student must (a) fulfill all requirements for the B.S. Degree and (b) complete the additional courses required by the College of Education. The student should make arrangements for an advisor in the Department of Middle, Secondary, and K-12 Education, and obtain an up-to-date listing and schedule for required education courses. It is generally not possible to complete this option within four years without attending summer sessions. Licensure applications are the responsibility of the student and the Office of Student Academic Services in the College of Education.

PHYSICS MINOR

A minor in Physics is available to all undergraduates except physics majors and requires a minimum of 17 hours of physics with an average grade of C or better. There are two options:

Option 1: PHYS 2101, 2102, 2101L, 2102L, 3141, and at least six additional hours at the 3000-4000 level selected from a list of approved courses that is available in the Department of Physics and Optical Science. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 17-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee.

Option 2: PHYS 1101, 1102, 1101L, 1102L, 3101, 3141, and at least three additional hours at the 3000-4000 level selected from a list of approved courses that is available in the Department of Physics and Optical Science. PHYS 3000, 3900, 4000, or 4800 may be used to fulfill the 17-semester hour requirement only if approved in advance for this purpose by the Undergraduate Studies Committee.

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 3900 (Senior Project), and successfully present the results of their project to a panel of faculty members. Details concerning this program are available from the Department of Physics and Optical Science.

SUGGESTED SCHEDULE FOR THE B.A. DEGREE IN PHYSICS:

Freshman

MATH 1241	3
CHEM 1251 and 1251L.....	4
PHYS 1000	1
Foreign Language Requirement (if required)	3-4
General Degree Requirement.....	3

PHYS 2101 and 2101L.....	4
MATH 1242	3
Foreign Language Requirement (if required)	3-4
General Degree Requirements (2)	6

Sophomore

PHYS 2102 and 2102L.....	4
MATH 2171	3
Foreign Language Requirement.....	3-4
General Degree Requirements (2)	6

PHYS 3101	3
PHYS 3141	3
MATH 2241	3
General Degree Requirements (2)	6

Junior

PHYS 3121	3
MATH 2242	3
Electives (3).....	9

PHYS 3282 (W,O).....	3
PHYS 4231	3
Electives (3).....	9

Senior

PHYS 4241	3
PHYS elective.....	3
Electives (3).....	9

PHYS elective.....	3
Electives (4).....	12

Note: One of the PHYS or General electives must be designated as a (W) course.

SUGGESTED SCHEDULE FOR THE B.S. DEGREE IN PHYSICS:

Freshman

MATH 1241	3
CHEM 1251 and 1251L.....	4
PHYS 1000	1
General Degree Requirements (2)	6

PHYS 2101 and 2101L.....	4
MATH 1242	3
ITCS 1214	3
General Degree Requirements (2)	6

Sophomore

PHYS 2102 and 2102L	4
MATH 2171.....	3
General Degree Requirements (3).....	9

PHYS 3101	3
PHYS 3141	3
MATH 2241.....	3
Electives (2).....	6

Junior

PHYS 3121	3
PHYS 3283 (W).....	3
MATH 2242.....	3
Electives (2).....	6

PHYS 3282 (W,O).....	3
PHYS 4231	3
PHYS elective.....	3
Electives (2).....	6

Senior

PHYS 4232	3
PHYS 4241	3
PHYS elective.....	3
Electives (2).....	6

PHYS 3151	3
PHYS elective.....	3
Electives (3).....	9

SUGGESTED SCHEDULE FOR THE B.S. DEGREE IN PHYSICS WITH A CONCENTRATION IN ASTROPHYSICS:

Freshman

MATH 1241.....	3
CHEM 1251 and 1251L.....	4
PHYS 1000	1
General Degree Requirements (2).....	6

PHYS 2101 and 2101L	4
MATH 1242.....	3
ITCS 1214.....	3
General Degree Requirements (2).....	6

Sophomore

PHYS 2102 and 2102L	4
MATH 2171.....	3
General Degree Requirements (3).....	9

PHYS 3101	3
PHYS 3141	3
MATH 2241.....	3
Electives (PHYS 1130 suggested) (2).....	6

Junior

PHYS 3121	3
PHYS 3283 (W).....	3
MATH 2242.....	3
Electives (2).....	6

PHYS 3282 (W,O).....	3
PHYS 4231	3
PHYS 3160	3
Electives (2).....	6

Senior

PHYS 3161	3
PHYS 4241	3
PHYS elective.....	3
Electives (2).....	6

PHYS 3151	3
PHYS 4242.....	3
Electives (3).....	9

SUGGESTED SCHEDULE FOR THE B.S. DEGREE IN PHYSICS WITH A CONCENTRATION IN OPTICAL SCIENCE:

Freshman

MATH 1241	3
CHEM 1251 and 1251L.....	4
PHYS 1000	1
General Degree Requirements (2)	6

PHYS 2101 and 2101L	4
MATH 1242	3
ITCS 1214	3
General Degree Requirements (2)	6

Sophomore

PHYS 2102 and 2102L.....	4
MATH 2171	3
General Degree Requirements (3)	9

PHYS 3101	3
PHYS 3141	3
MATH 2241	3
Electives (2).....	6

Junior

PHYS 3121	3
PHYS 4271	3
MATH 2242	3
Electives (2).....	6

PHYS 3282 (W,O).....	3
PHYS 4231	3
Electives (3).....	9

Senior

PHYS 4232	3
PHYS 4241	3
PHYS 4125	3
Electives (2).....	6

PHYS 4281 (W).....	3
PHYS electives (2)	6
Electives (2).....	6

COOPERATIVE EDUCATION PROGRAM

Students majoring in Physics have an opportunity to combine work experience with their academic experience. The Cooperative Education Program is a plan whereby a student completes his/her lower-division coursework and, after being formally accepted as a co-op student, alternates periods of academic coursework with periods of paid employment in an area mutually agreed upon by the student, an employer, and the University. This program enables the student to integrate classroom instruction with practical on-the-job experience with business, industry, government agencies, or other employers. A student

electing this option should expect to graduate in five years, instead of the four years normally required. Further information regarding Cooperative Education can be found in the Special Programs section of this *Catalog*. Information regarding the application procedure for admission into this program can be obtained from the Physics and Optical Science Department or the University Career Center.

Department of Political Science

Chairperson: Professor Arrington; *Professor Emeritus:* Dorin, Jamgotch, McCoy, Mead; *Distinguished Professors:* Brandon, Combs, Godwin; *Professors:* Brenner, Chernotsky, Lyons; *Associate Professors:* Bacot, Brown, Fleitas, Heberlig, Rassel, Swindell, Walsh, Weeks; *Assistant Professors:* Carman, Johnson, Leland, Manuel, Piazza, Whitaker, Wright; *Instructor:* Caste

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 preprofessional 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 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 *Graduate School Catalog*.)

BACHELOR OF ARTS

A major in Political Science for the B.A. degree requires 30 semester hours of political science to include: (1) POLS 1110 (Introduction to American Politics); (2) POLS 1130 (Introduction to Comparative Politics); (3) POLS 1150 (Introduction to International Politics); (4) POLS 2220 (Political Science Methods) or equivalent social science methods course; (5) at least one course in the subfield of Political and Legal Philosophy and (6) at least one of the following courses: POLS 4110 (North Carolina Student Legislature), POLS 4163 (Model United Nations), POLS 4990 (Senior Thesis), or POLS 4600 (Senior Seminar). No more than nine hours of credit from POLS 4110, 4163, 4400 or 4800 can be offered to fulfill major requirements. Students should take either POLS 1130 or POLS 1150 (not both) as a writing intensive course designated with a (w) in the schedule of courses.

Related Work. Students majoring in Political Science 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, Arabic, 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 ENGL 1101 and ENGL 1102 or the equivalent.

Concentration in Comparative and International Politics. Students may opt to receive the Bachelor of Arts in Political Science with a concentration in Comparative and International Politics. Requirements include at least 18 hours (as part of the required 30 hours in political science) in courses listed under Comparative and International Politics. Majors seeking this concentration are encouraged to diversify their coursework by completing the major or minor in International Studies.

Concentration in Public Policy. Students may earn the Bachelor of Arts degree in Political Science with a concentration in Public Policy by completing 18 hours (as part of the required 30 hours in political science) in public policy courses. This 18 hours must include POLS 2120 and at least 15 hours selected from: POLS 3114, 3115, 3121, 3124, 3125, 3126, 3132, 3135, 3154, 3157, 3161, 3169, 3175 or some other public policy course specifically designated by the Chair of the Political Science Department. To receive the concentration in Public Policy the student must also complete an introductory economics course (ECON 1100, 1201, or 1202). Note that both ECON 1201 and 1202 are highly recommended, but not required.

Advanced Placement Program. Students who receive an evaluation of Qualified (3) or better on the Advanced Placement examination in American Politics will receive credit for POLS 1110. Students who receive an evaluation of Qualified (3) or better on the Advanced Placement examination in Comparative Politics will receive credit for POLS 1130.

POLITICAL SCIENCE MINOR

The political science minor requires 18 semester hours of political science. The student can choose any combination of courses with the POLS designation to fulfill this requirement with the following exceptions:

- 1) No more than nine hours of credit from POLS 4110, 4163, 4400 or 4800 can be offered to fulfill minor requirements.
- 2) Although students may repeat POLS 4110, 4163, 4400, or 4800 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.

HONORS PROGRAM

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 would work on their thesis under the same procedures as all other students, but would then submit their thesis for evaluation by the Honors Committee. Faculty members who serve on the Honors Committee would not evaluate senior theses completed under their supervision. Instead, the Honors Committee would ask another faculty member to evaluate the thesis in question along with the other two members of the Committee. If the Committee agreed to confer Honors on the student's thesis, it would certify this to the Department Chair. If the Committee decided that the thesis did not warrant Honors, the student would still receive whatever grade the faculty member supervising the thesis had assigned.

Department of Psychology

Chairperson: Cutler; *Associate Chairperson*: Van Wallendaal; *Bonnie E. Cone Distinguished Professor in Teaching*: Maisto; *Professors*: Calhoun, Cann, Foos, Goolkasian, Grimsley, Tedeschi, Terry, Toner; *Professors Emeritus*: Diamant, Lamal, Simono; *Associate Professors*: Buch, Cook, Fernald, Gaultney, Gilmore, Johnson, Lee, McAnulty, Rogelberg, Siegfried; *Associate Professors Emeritus*: Kaplan, Long, Sohn; *Assistant Professors*: Blanchard, Demakis, Faust, Gil-Rivas, Kilmer, Reeve, Welbourne; *Lecturer*: Spaulding

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 young and a dynamic science and profession. Most of what we know has been learned in the last 50 years. Much is left to be learned by the psychologists of the future.

The Psychology Department offers a Bachelor of Arts (B.A.), a Bachelor of Science (B.S.), an undergraduate minor in Psychology, a Master of Arts (M.A.) degree, and a Ph.D. in interdisciplinary Health Psychology. 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 retarded or the emotionally disturbed, and juvenile delinquent or pre-delinquent homes. 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.A. or the B.S. degree. For a psychologist with a master's degree or doctorate, the career opportunities grow (see *The Graduate School 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.

BACHELOR OF ARTS

A major in psychology leading to the B.A. degree consists of 29 hours of psychology. These hours must include General Psychology (1101 and 1101L), Research Methodology (2102), History and Systems (3103), a Senior Seminar (4613, 4619, 4625, 4630, 4650, 4655, 4660, or 4670), one unrestricted elective, and two courses from each of two Restricted Elective categories: Scientific Foundations of Practice and Scientific Psychology.

Scientific Foundations of Practice: Students will select at least two courses which must be from different areas:

- Area 1: Individual Differences and Dysfunctional Behavior (PSYC 2150, 3135, 3151)
- Area 2: Human Development (PSYC 2120, 2121, 2124)
- Area 3: Practice (PSYC 2160, 2171, 3155)

Scientific Psychology: Students will select at least two courses which must be from different areas.

- Area 1: Biological Aspects (PSYC 3110, 3113, 3115, 3117)
- Area 2: Cognitive/Affective Aspects (PSYC 3111, 3114, 3116, 3116)
- Area 3: Social Aspects (PSYC 3130)
- Area 4: Psychological Measurement (PSYC 3140)

Students must select at least three hours of electives in psychology to fulfill the 29-hour requirement for the B.A.

Electives should be selected to aid the student in the attainment of personal goals. However, the student cannot include more than three hours credit in PSYC 3405 and three hours credit in PSYC 3806 in the 29-hour requirement of the major, nor will the student be allowed to apply more than eight hours in PSYC 3405 or PSYC 3806 to the 120 hours required for the B.A.

Other specific requirements for the B.A. degree include: STAT 1222 (Elements of Statistics) and majors must satisfy the University General Education requirements listed for the Bachelor of Arts Degree.

Related Work. Students pursuing a B.A. in Psychology are expected to be exposed to a depth of knowledge in at least one domain outside of psychology through their completion of the Related Work Requirement. Related Work should be considered in terms of the fulfillment of individual educational and vocational aspirations. Students must select one of the following options.

- Option 1: Complete a second major.
- Option 2: Complete a minor in a domain outside Psychology.

A GPA of 2.0 must be achieved for the major, as well as for the second major or minor. A grade of C or better in PSYC 1101 and PSYC 2102 is required to progress in the major.

BACHELOR OF SCIENCE

A major in psychology leading to the B.S. degree consists of 35 hours of psychology. These hours must include General Psychology (1101 and 1101L), Research Methodology (2102), History and Systems (3103), a Senior Seminar (4613, 4619, 4625, 4630, 4650, 4655, 4660, or 4670), nine hours of unrestricted electives, and two courses from each of two categories: Scientific Foundations of Practice and Scientific Psychology.

Scientific Foundations of Practice: Students will select at least two courses which must be from different areas:

- Area 1: Individual Differences and Dysfunctional Behavior (PSYC 2150, 3135, 3151)
- Area 2: Human Development (PSYC 2120, 2121, 2124)
- Area 3: Practice (PSYC 2160, 2171, 3155)

Scientific Psychology: Students will select at least two courses which must be from different areas.

- Area 1: Biological Aspects (PSYC 3110, 3113, 3115, 3117)
- Area 2: Cognitive/Affective Aspects (PSYC 3111, 3114, 3116, 3316)
- Area 3: Social Aspects (PSYC 3130)
- Area 4: Psychological Measurement (PSYC 3140)

Students must select at least nine hours of electives in psychology to fulfill the 35-hour requirement for the B.S.

Electives in psychology should be selected to aid the student in the attainment of personal goals. However, the student cannot include more than three hours credit in PSYC 3405 and three hours credit in PSYC 3806 in the 35-hour requirement of the major, nor will the student be allowed to apply more than eight hours in PSYC 3405 or

PSYC 3806 to the 120 hours required for the B.S.

Other specific requirements for the B.S. degree include: STAT 1222 (Elements of Statistics) and majors must satisfy the University General Education requirements listed for the Bachelor of Science Degree.

Reasoning and Natural Science Requirements. Students pursuing a B.S. in Psychology are expected to be exposed to a depth of knowledge in reasoning and the natural sciences. Students must select from one of the following options:

- *Option 1:* Complete a second major in Biology or Chemistry or Computer Science or Math.
- *Option 2:* Complete a minor in Biology, Chemistry, Computer Science, Math, Neuroscience, or Cognitive Science, or other minor approved by the Department.
- *Option 3:* Complete six hours from among: PHIL 1105; PHIL 2105; PHIL 3235; PHYS 1101; Any CSCI; Any OPRS; Any MATH above 1105; Any STAT above 1222.

AND complete 18 hours of biology or chemistry including at least three courses with labs and any two additional courses from the areas of Biology and Chemistry.

A GPA of 2.0 must be achieved for the major, as well as for the second major, minor, or *Option 3* hours. A grade of C or better in PSYC 1101 and PSYC 2102 is required to progress in the major.

Course Sequences Within the Major. The Psychology Department offers course sequences designed to provide a more in-depth exposure to certain areas of Psychology. Sequences are currently available in Clinical, Cognitive, Community, Developmental, Health, Industrial/Organizational, Physiological, and Social Psychology, and Psychometrics. In addition, the Psychology Department actively participates in several interdisciplinary areas of study including Gerontology, Women's Studies, and Cognitive Science. Detailed information about course sequences and interdisciplinary areas of study is contained in the Psychology Department Student Handbook which is available in the Psychology Office or online at www.psych.uncc.edu.

Consult the Department of Psychology web page (www.psych.uncc.edu) for a Suggested Schedule to complete the B.A. or B.S. degree with a Major in Psychology.

PSYCHOLOGY MINOR

A minor in psychology consists of 19 semester hours of psychology to include PSYC 1101, 1101L, and a minimum of one course from both the Scientific Foundations of Practice Area and the Scientific Psychology Area. A minimum of six hours of coursework at the 3000 level or above is required. No more than three semester hours of PSYC 3806 may be counted toward the minor and PSYC 3405 may not be used for the minor.

Department of Religious Studies

Chairperson: Tabor; *Isaac Swift Distinguished Professor:* Cohen; *Blumenthal Professor:* Reeves; *Professors:* Meyer, Reeves, St. Clair, Thomas; *Associate Professors:* Johnson, Robinson, White; *Assistant Professor:* Burlein; *Lecturers:* Marshall, Rochester

Religious studies is the academic inquiry into the fundamental stories, myths, symbols, and practices by which we as human beings have attempted to make sense of ourselves and the worlds in which we live. In addition to courses in Western, Asian, African, and Native American religious traditions, the department offers courses in the interaction of religion and modern culture in such areas as art, literature, language, film, science, and issues of race and gender. The department is explicitly committed to the liberal arts tradition with an international and pluralistic perspective.

Most students major or minor in Religious Studies 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.

BACHELOR OF ARTS

A major in religious studies requires 30 semester hours in religious studies courses as follows:

I. Foundational Courses (9 hours). Three required courses: RELS 2101 Introduction to Western Religions, RELS 2102 Introduction to Asian Religions, and RELS 2600 Approaches to the Study of Religion.

II. Upper-level courses in two different religious traditions (6 hours). One course in a Western tradition selected from: RELS 3110 Judaism, RELS 3120 Christianity, or RELS 3131 Islam. One course in an Asian tradition selected from: RELS 3154 Hinduism, RELS 3157 Buddhism, RELS 3166 Daoism, or RELS 3160 Zen Buddhism.

III. Religion and modern culture (6 hours). Two courses selected from the following: RELS 3050, 3137, 3209, 3212, 3242, 4010, 4050, 4101, 4201. The specific topics for RELS 3050 and 4050 are announced each semester.

IV. Two religious studies electives (6 hours). Any two additional courses in religious studies.

V. Senior seminar (3 hours). In their senior year, all religious studies majors must complete RELS 4600. This seminar includes completion of a senior essay and an oral presentation to students and faculty.

RELIGIOUS STUDIES MINOR

A minor in Religious Studies consists of a minimum of 15 hours, with at least two courses at the 3000 level or above.

Department of Sociology and Anthropology

Chairperson: Brody; *Professor Emeritus:* Ferraro; *Professors:* Mickelson, Shenk, Webster, Whitmeyer; *Associate Professors:* Aulette, Hopcroft, Lance, Levy, Marks, Rashotte, Scheid, Starrett, Wayland, Zablotsky; *Assistant Professors:* Brockman, Cao, Fitzgerald, McLaughlin, Moller, Zhao; *Lecturers:* Green, McKenzie, Rutledge

The Department of Sociology and Anthropology offers academic majors in Anthropology and Sociology leading to a Bachelor of Arts degree. On the graduate level, the Department offers the M.A. degree in Sociology.

Anthropology. Anthropology is the study of humans and their cultures, and the exploration of 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.

Sociology. 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 preprofessional 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.

ANTHROPOLOGY MAJOR: BACHELOR OF ARTS

A major in Anthropology leading to the B.A. degree requires completion of: (1) 34 semester hours of anthropology; including (2) ANTH 1101, 2141, 2151, 3101 and 4601; plus (3) 18 semester hours of electives in

anthropology, including at least six semester hours in cultural anthropology; and (4) completion of ANTH 4601 with a grade of C or better. Also required are 18 semester 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.

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 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 ENGL 1101 and ENGL 1102 or the equivalent.

Students should consult the Department concerning internships and field schools in anthropology.

ANTHROPOLOGY MINOR

The minor in Anthropology requires the completion of 18 hours of anthropology including ANTH 1101 and 15 hours of electives with at least one course in each of three subdivisions of anthropology: cultural anthropology, biological anthropology, and archaeology. A grade point average of at least 2.0 is required in the 18 hours of anthropology.

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.

To graduate with honors in anthropology, a student must complete ANTH 4501, 4601(H), an internship or study abroad, and two university honors courses.

For further information, interested students should consult with the coordinator of anthropology.

SOCIOLOGY MAJOR: BACHELOR OF ARTS

A major in Sociology leading to the B.A. degree consists of: (1) a minimum of 32 semester hours of sociology courses; including (2) a core curriculum of SOCY 1101, 3153, 4155, and 4156; (3) at least 23 hours at the 3000 level or above (but may include SOCY 2090); (4) at least three hours designated W in the major; and (5) a minimum of 18 semester hours of related work or a minor.

Related work is arranged by the student in consultation with an advisor and may consist of a concentration of courses: (1) within a single discipline; (2) selected from two complementary disciplines; or (3) focused upon a specific topic. Students in the teacher licensure program may use the courses in the professional education sequence as their related work. Students should consult with the Department about internship opportunities in sociology.

SOCIOLOGY MINOR

The minor in Sociology requires the completion of 18 hours in sociology including Introduction to Sociology and at least one course at the 3000 or 4000 level. A grade point average of at least 2.0 is required in the 18 hours of sociology.

EARLY ENTRY PROGRAM: Master's in Sociology

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 Sociology courses.
3. The student must take the GRE exam and earn scores that are acceptable for graduate admission.

The 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 classes (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 under-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.

Urban Studies

INTERDISCIPLINARY STUDIES

Coordinator: Assistant Professor H. A. Smith

URBAN STUDIES MINOR

A minor in Urban Studies requires completion of 18 hours taken from the following courses: ANTH 2125 (Urban Anthropology) or SOCY 4125 (Urban Sociology); ARCH 1100 (History of American Architecture); GEOG 2165 (Patterns of World Urbanization); GEOG 2200 (Introduction to Urban Studies); GEOG 3100 (City and Region); GEOG 4205 (Internal Structure of the City); HIST 3281 (American Cities); HIST 3214 (Urban South); HIST 3280 (Blacks in Urban America); POLS 3121 (Urban Politics) or GEOG 3110 (Urban Political Geography). A student may also count up to 9 hours of other courses that have a significant urban focus with the prior permission of the Coordinator of the Urban Studies minor in the Department of Geography and Earth Sciences.

Women's Studies

INTERDISCIPLINARY STUDIES

Director: Wayland; *Adjunct Professors:* Miller, Shenk, Tong; *Adjunct Associate Professor:* Aulette, Booth, Gardner, Pizzato, Stephenson, Van Wallendael; *Adjunct Assistant Professors:* Burlein, Coleman, Feinberg, Gargano, Hartman, Lottman, Munroe; *Adjunct Program Associate:* Haigler, Masse, Mozenter

The Women's Studies 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 Studies. Most students find Women's 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 STUDIES

The Women's Studies minor is open to all students regardless of gender and requires completion of at least 18 hours in approved courses offered by the Women's Studies Program and other departments and programs. A maximum of nine hours may be earned from any one department or program outside of Women's Studies. Students minoring in Women's Studies must complete the following requirements:

- 1) WMST 1101 Introduction to Women's Studies (3)
OR WMST 3102 Changing Realities of Women's Lives (3)
- 2) WMST 3220 Feminist Thought (3) **OR** WMST 3227 Feminist Philosophy (3) **OR** Another Approved WMST topics course (to be determined by coordinator)
- 3) Any WMST at the 4000 level
- 4) Nine hours of electives

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 Women's Studies Program Coordinator. Students minoring in Women's Studies should check their choices of electives with the Women's Studies Program Coordinator, both when they are planning their minor and when they are reviewing it in preparation for graduation.

Examples of regularly taught courses in other departments that count as Women's Studies electives include, *but are not limited to*:

AAAS 2201 Introduction to Human Relations
AAAS 2215 Black Families in the U.S.
AMST 4050 Female Adolescence in America
ANTH 2123 Women in Crosscultural Perspective
ARTS 3001 Women in Art
CJUS 4162 Seminar on Sexual Assault
ENGL 3050/AMST 3050 Southern Women Writers
ENGL 4002 Women in Literature
GRNT 4260 Women: Middle Age and Beyond
HIST 2150 U.S. Women's History to 1877
HIST 2151 U.S. Women's History Since 1877

HIST 2152 European Women's History
HIST 3000/AMST 3050 Southern Women's History
NURS 4090 Sexuality in Health and Illness
NURS 4191 Women's Health Issues
NURS 4194 Building Community Response to Domestic Violence
PHIL 3227 Feminist Philosophy
PSYC 3126 Psychology of Women
SOCY 2163 Sociology of Gender
SOCY 2132 Marriage and Family
SOCY 3261 Human Sexuality
SOCY 4090 New Theoretical Approaches to Gender
SOCY 4165 Sociology of Women
SPAN 3019 Hispanic Women Writers in English Translation
THEA 3050 Women's Writings Onscreen
THEA 4050 Violent Film Females

Courses approved for the minor that are taught infrequently:

AAAS 4106/ENGL 4156 Gender in African-American Literature
ANTH 2090/AAAS 3050 Gender in a Transforming Africa
ANTH 4090 Culture, Pregnancy, and Birth
CJUS 4000 Gender, Race, and Justice
ENGL 4090 Native American Women
HIST 3131 History of Sexuality
HIST 3168 Women and Family in Modern East Asia
PHIL 3050 Philosophy of Sex
RELS 3050 Religion and Gender
RELS 3111 Women and Judaism

A complete list of courses approved for the minor in Women's Studies is available in the Women's Studies Program Office.

GRADUATE COURSES

The Women's Studies Program regularly offers advanced graduate-level courses for students wishing to include the study of women, gender, or feminism in their graduate work. These courses, which are broad in scope, enable graduate students to pursue their own research while they develop a substantial background in the field. Graduate offerings include:

WMST 6050/LBST 6000 Language, Gender, and Power
WMST 6050/PHIL 6050 Feminist Theory and Its Applications
WMST 6800 Directed Reading/Research

The Women's Studies Program also regularly offers 4000 level courses designed for graduate students and advanced undergraduate students. Graduate students can receive permission from their program coordinators to take these courses for graduate credit. See the above list of elective courses for recent 4000 level offerings.

Graduate students interested in taking Women's Studies courses should contact the Women's Studies Program Coordinator.

THE BELK COLLEGE OF BUSINESS

Dean: Professor Claude C. Lilly; *Associate Dean:* Professor John Gandar; *Associate Dean of Graduate Studies and Research:* Professor Casper Wiggins; *Interim Associate Dean of International Programs:* Associate Professor Richard Conboy; *Assistant Dean for Undergraduate Student Affairs:* Associate Professor Jack Hogue

Mission and Objectives. The Belk College of Business serves the people of the Charlotte region and the State of North Carolina, as well as selected national and international communities. The College serves these constituents through the delivery of undergraduate and graduate programs in business administration and related interdisciplinary fields and through the development and dissemination of new knowledge. Through continuous improvement, the College seeks to maintain high standards in its programs and its intellectual contributions. In carrying out its mission, the College is committed to maintaining diversity within the faculty and student body.

To accomplish its mission, the faculty of the College engages in three major activities: teaching, intellectual contributions, and public service. The College believes that scholarship informs teaching and, therefore, the College emphasizes both teaching and intellectual contributions. The College values the work of the faculty in the discovery of new knowledge through basic research and its practical applications. The College's commitment to excellence in teaching ensures that the scholarship of teaching through instructional development is recognized as an important form of intellectual contribution. Faculty engage in a third activity of public service through outreach programs, applied scholarship, and other activities that promote the economic health and the development of the region.

In support of this mission, the College has the following strategic objectives:

- To provide and support undergraduate education through a broad range of programs in business administration that are excellent in quality, current in curricula, and relevant to business practice
- To provide and support graduate programs of distinction that serve the needs of the community, meet the demands of the student population, utilize the expertise of the faculty, and support the University mission
- To encourage and support the faculty in areas of basic research, applied research, instructional development and in their efforts to secure funding for intellectual contributions
- To develop and maintain research programs of distinction that support the economic competitiveness and the development of the greater Charlotte metropolitan region and state
- To meet the needs of the community for the continued development of leadership, management, and technical skills in business and other organizations through executive education and other outreach programs

- To develop and maintain lifelong partnerships with the alumni of the College.

Bachelor's Programs. The Belk College of Business offers the following bachelor's degree programs:

Bachelor of Science degree in Accounting. This program offers full academic preparation for the Certified Public Accountant (CPA) designation.

Bachelor of Science degree in Business Administration. The B.S.B.A. degree encompasses a full range of academic disciplines within the area of business administration. The degree provides breadth in the context and operation of the business enterprise through the business core curriculum and depth in a specialized area through the selection of a major. Majors are offered in:

Finance
Industrial and Operations Management
International Business
Management
Management Information Systems
Marketing

Bachelor of Science degree in Economics. This program offers a Business Administration emphasis and a Liberal Arts emphasis. The Department of Economics also offers a minor in Economics.

Programs are designed so that transfer students from community colleges and other institutions may enter the program and complete their degree requirements in the last two years of their college work. Students planning to take their first two years in community colleges should inform their advisor or counselor of their intent to apply to UNC Charlotte so that their program may be tailored to facilitate transfer.

Master's Programs. The College offers several master's programs, including the Master of Business Administration, the Master of Science (M.S.) degree in Economics, the Master of Accountancy, and the Master of Science in Mathematical Finance. Programs are designed to accommodate the needs of both full-time and part-time students. (*See the Graduate Catalog for information about these programs.*)

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. AACSB International is also the professional organization for management education.

Course Level and Course Prerequisite Restrictions: The Belk College strongly enforces course level and course prerequisites. Freshman and sophomore level classes should be completed while the student is a freshman and sophomore, and upper-division classes (3000 level) are

restricted to students with junior or senior standing. Students must meet the prerequisites stated for courses in the College. A student may not enroll in any class for which the student has not completed the prerequisites. Students enrolling in MGMT 3280, Business Policy, must have achieved senior level status and have completed all core classes (with the exception of INFO 3130).

College Residency Requirements: In addition to meeting University residency requirements, all students seeking undergraduate degrees in The Belk College must complete at least 50% of the required business credit hours and 50% of the required credit hours in the upper-level major at UNC Charlotte. Additionally, at least half of the hours required for an undergraduate degree in The Belk College of Business must be taken outside of the College.

Experiential Learning Opportunities. Students are encouraged to participate in professional work experiences that support academic and career development. The College is working with the University Career Center to expand experiential learning offerings to enable more students to graduate with career-related experience. The program consists of 49ership opportunities and Cooperative Education.

Cooperative Education involves professionally related, paid work experiences in multiple semesters. It does not offer academic credit, but it is noted on the student's transcript. To participate in this program, students must have a GPA of at least 2.5, meet specific departmental requirements, and pay a participation fee. Approval for enrollment must be arranged before the student begins the work experience. Most students begin this program during their junior year; transfer students must complete one semester at UNC Charlotte before making application for the program. Students maintain full-time student status during their co-op work semesters.

For further information, and to explore other credit and non-credit experiential learning opportunities including internships, contact the major Department Chairperson or the University Career Center.

49erships involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours 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 their freshman year, and have a 2.0 minimum cumulative GPA are eligible. It does not offer academic credit, but it is noted on the student's transcript; students pay a participation fee. Approval for enrollment must be arranged before the student begins the work experience. Students may begin this program during their sophomore year; transfer students must complete one semester at UNC Charlotte before making application for the program. For more information, contact the University Career Center.

Evening and Weekend Courses and Summer Sessions. All courses required in the Bachelor of Science in Business Administration degree program and the Bachelor of Science degree program in Accounting are offered in the evening, as well as during the day. The Master of Business Administration and the Master of Accountancy degree programs are offered in the evening. A program of summer

offerings is also available. Some coursework is also available on weekends.

Scholarships. There are several scholarships available for students in The Belk College of Business. Some of the scholarships are designated to recognize academic excellence in the junior and senior years. Further information can be obtained from the Financial Aid Office.

Service Learning Opportunities through the University Career Center. Service Learning opportunities include *49erships* in non-profit and government agencies and organizations, enabling students to gain career related and community service experience while learning about related social, civic, human service, and political issues. Students work a minimum of 80 hours per semester to complete the program. Fall and spring 49erships are part-time, and summer 49erships may be full or part-time. Students must qualify academically, and pay a registration fee for transcript notation. 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. Students receive transcript notation, but not academic credit.

PRE-ACCOUNTING, PRE-BUSINESS, AND PRE-ECONOMICS

Students who do not meet all requirements for direct admission to the upper-division of the College are admitted to the lower-division, provided the student meets College admission requirements. Students seeking the B.S. degree in Accounting are designated as Pre-Accounting majors. Students seeking the B.S.B.A. degree with a major in Finance, International Business, Management, Management Information Systems, Marketing, or Operations Management are designated as Pre-Business Majors. Students seeking the B.S. degree in Economics are designated as Pre-Economics majors. Students may be admitted to the upper-division major once all progression requirements are satisfied. Progression requirements for each major are described in the sections that follow.

Students must have progressed to an upper-division major to be eligible to enroll in the upper-division electives. Lower-division students may not enroll in MGMT 3280.

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 issues.

Admission. Students majoring in The Belk College of Business must complete an *Application for Admission* to the Business Honors Program and conduct an interview with the Program Director. Admission to the program is based on the student's demonstrated Honors potential (determined by examining GPA, SAT scores, courses completed, academic and other distinctions, and other factors) and availability of space in the program. If the GPA of a student admitted to the program drops below that required for graduation for two successive semesters, the student will be dismissed from the program.

Courses. Students in the Business Honors Program

must complete a minimum of 18 semester hours including BUSN 3780 and 3790, nine hours in business honors sections, and three hours from the University Honors Program. Once students are admitted to Business Honors they are required to complete all business honors sections offered unless they receive permission from the Director of the Business Honors Program. Honors courses cannot be repeated.

Extra-curricular Activities. Students in the Business Honors Program are required to participate in a minimum of 50% of the extra-curricular activities and events offered by the Program during the academic year.

Certification Requirements. To graduate with "Honors in Business," a student must complete the required Honors courses, submit an application for Honors Candidacy at least two semesters prior to graduation, receive a grade of at least *B* in BUSN 3790, and present a GPA of at least 3.3 overall and 3.3 in all Honors courses for which a grade was assigned.

Department of Accounting

Chair: Associate Professor Burton; *Professors:* Godfrey, Schroeder; *Professors Emeriti:* Turner; *Associate Professors:* Bhamornsiri, Cathey, Elias, Guinn, Malmgren; *Associate Professor Emeritus:* Hinson, Williamson; *Assistant Professors:* Blanthorne, Matherly, Sevin; *Big-Five Endowed Chair in Accounting:* Wiggins; *Lecturer:* Breen, Yarbrough

Mission of the Department of Accounting

The mission of the Department of Accounting at the University of North Carolina at Charlotte is to be a leader in offering highly regarded graduate and undergraduate programs for students entering professional accounting, to produce academic publications at a competitive level, and to serve our important constituencies well.

Program Objectives

The 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 career. The undergraduate accounting curriculum is designed to enable students to:

- effectively develop, measure, analyze, validate, and communicate financial and other information,
- understand the concepts and methods of economics, finance, marketing, quantitative methods, management, information systems and business, and
- develop skills, competencies and learning capacities that are essential for a broad education.

Program Outcomes

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 semester hours of academic study beyond the undergraduate

accounting education. A student can meet this requirement by completing the Master of Accountancy Program.

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.

BACHELOR OF SCIENCE

In addition to the General Education requirements of the University, the following **21** courses are required for a B.S. degree in Accounting: ACCT 2121, 2122, 3311, 3312, 3330, 3340, 3350, and 4220; BLAW 3150; ECON 2101 and 2102; FINN 3120; INFO 2130 and 3130; MATH 1120; MGMT 3140, 3160, and 3280; MKTG 3110; OPER 3100; and STAT 1220.

A student must take at least 90 hours outside of Accounting and must take at least 48 hours outside The Belk College. At least 50% of the business credit hours required for an Accounting degree must be earned at the University of North Carolina at Charlotte. At least 50% of the required accounting courses at the 3000 level or higher must be completed at UNC Charlotte.

To obtain a B.S. degree in Accounting, a student must meet the University requirements of a GPA of at least 2.0 overall and in the 21 courses for the major listed above, and must have a 2.0 GPA in all 3000 and 4000 level required business and accounting courses with no more than one D left standing for these courses. When a student repeats a course, both the old grade and the new grade are included in the computation described in the preceding sentence. Approval by the Chair of the Accounting Department is required before a student may repeat a course for credit more than once. Consult the Department of Accounting for a Suggested Schedule to complete the B.S. degree with a major in Accounting.

Requirements. To be accepted into the accounting major and to progress into the upper division of the College, a student must have: (1) attained junior standing; (2) completed ACCT 2121 and 2122, ECON 2101 and 2102, INFO 2130, MATH 1120, and STAT 1220 with a C or better in each course; (3) have a GPA of at least 2.5 for all academic work; and (4) filed an approved "Program of Study" in the College Office of Student Records. Students may attempt each of the seven courses in (2) above a maximum of two times. All attempts are used in the calculation of overall GPA and major GPA. Students who are not successful in earning the required 2.5 GPA are ineligible for continuation in The Belk College.

Classification as Pre-Accounting Students. Students seeking admission to the accounting major will be classified as pre-accounting students within the Belk College of Business until they qualify for acceptance to the accounting major. Pre-accounting students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a C in INFO 2130 or have passed the College Microcomputer Proficiency Test. Students must complete all requirements

and be accepted into an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.

In order to progress into the 3000-level business core courses (BLAW 3150, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MKTG 3110, and OPER 3100), pre-accounting, pre-business, and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be cancelled.

The following Accounting courses are limited to students with a major in The Belk College of Business: (1) ACCT 3311, (2) ACCT 3312, (3) ACCT 3330, and (4) ACCT 3340.

The following Accounting courses are limited to students with an upper-division major in The Belk College of Business: (1) ACCT 3350, and (2) ACCT 4220. All other Accounting courses at the 3000 level or higher are limited to Accounting majors.

Core, Mathematics and Statistics Requirements.

Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 2101 and 2102; FINN 3120; INFO 2130 and 3130; MGMT 3140, 3160, and 3280; MKTG 3110; OPER 3100; MATH 1120; and STAT 1220.

Internship. Because the Department is committed to experiential learning, it allows for Accounting majors to use one internship for academic credit. Consent of the Department is required before starting the internship. A minimum of ACCT 3312 (Intermediate Financial Accounting II) with a C or better and an overall GPA of at least 2.0 are required. The student may not have a current or prior work history with the internship company.

Cooperative Education Program. Students in the Department of Accounting may obtain practical work experience related to their major by participating in the Cooperative Education Program. The work experience arranged in coordination with the University Career Center must be closely related to the study of accounting and must be approved by the Co-op Advisor in the Accounting Department.

To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. Students selected to work in a public accounting firm or for an internal audit position may complete program requirements by working one semester and either writing a paper or making a formal presentation before faculty and students.

Department of Business Information Systems and Operations Management

Chairperson: Khouja; *Professors:* Barnes, Cooper, Saydam; *Associate Professors:* Hogue, Kumar, Robbins, Stylianou; *Assistant Professors:* Dasci, Park, Prasad, Smith, Subramaniam, Winter; *Lecturers:* J. Geurin, Otto.

The Business Information Systems and Operations Management Department offers majors in two dynamic disciplines - Management Information Systems (MIS) and Industrial and Operations Management (IOM). In addition, the department offers a minor in MIS. 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 MIS involves the application of information technology and analytical skills to the solution of organizational problems and opportunities for innovation. MIS graduates are prepared for positions in the design, planning, development, implementation, and management of e-business information systems and systems support.

A major in IOM focuses on the efficient use of resources to provide quality goods and services. IOM enables students to pursue such careers in supply chain management, production planning, project management, quality assurance, and operations. Environments in which IOM graduates are in high demand include health care, government, manufacturing, and service industries.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Students majoring in Management Information Systems receive a Bachelor of Science in Business Administration degree with a major in Management Information Systems. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business, 24 hours in the major (beyond the core), six hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the six hours of mathematics and statistics, at least 45 hours of coursework must be taken outside The Belk College of Business.

Students majoring in Industrial and Operations Management receive a Bachelor of Science in Business Administration degree with a major in Industrial and Operations Management. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business, 15 hours in the major (beyond the core), six hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the six hours of mathematics and statistics, at least 45 hours of coursework must be taken outside The Belk College of Business.

Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 2102, 2102, and 3125; FINN 3120; INFO

2130 and 3130; MGMT 3140, 3160, and 3280; MKTG 3110; OPER 3100; MATH 1120; and STAT 1220. Students must have a GPA of at least 2.0 for all academic work and for the major with no more than one *D* left standing in the major. Courses for computation of the GPA in the major include the business core, mathematics courses, and hours specified for the MIS or IOM major. No course may be repeated more than twice.

Progression Requirements. To be accepted into the MIS major and to progress into the upper division of the College, students must have: (1) attained junior standing; (2) successfully completed the required progression courses (ACCT 2121 and 2122; ECON 2101 and 2102; INFO 2130, MATH 1120; and STAT 1220) with a grade of *C* or better in each course; (3) a minimum overall grade point average of 2.5; and (4) filed an approved "Program of Study" in the Belk College Advising Center.

Students may attempt each of the above seven courses in (2) above a maximum of two times.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and either have earned at least a *C* in INFO 2130 or have passed the College Microcomputer Proficiency Test. Students must complete all progression requirements and be accepted into an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.

In order to progress into the 3000-level business core courses (BLAW 3150, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MKTG 3110, and OPER 3100), pre-accounting, pre-business, and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be cancelled.

Cooperative Education Program. Management Information Systems and Industrial/Operations Management majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. Participation must be approved in advance. Contact the University Career Center for more information.

MANAGEMENT INFORMATION SYSTEMS MAJOR

The primary objective of the Management Information Systems (MIS) major is to prepare students for careers in the information systems function of organizations. The curriculum is designed to provide both technological and managerial knowledge relevant to the development and use of computer-based information systems.

The following courses are required:

ITCS/INFO 2231	Introduction to Business Programming
INFO 3231	Business Application Development
INFO 3233	Business Database Systems
INFO 3234	Business Information System Development
INFO 3229	Business Data Communications

One of the following two courses is required:

INFO 3235	Advanced Business Information Systems Development
INFO 3240	Fundamentals of eBusiness

Two of the following courses are required:

INFO 3000	Special Topics in MIS
INFO 3232	International Information Systems Management
INFO 3236	Decision Support Systems
INFO 3238	Current Issues in the Management of Information Systems
INFO 3800	Directed Study in MIS
OPER 3203	Management Science
OPER 3204	Management of Service and Project Operations
OPER 3206	Managing for Quality
ITCS 2112	Advanced Structured COBOL
ITCS 3112	Design and Implementation of Object-oriented Systems
ITCS 3141	Computer Organization
ITCS 3155	Software Engineering
ITCS 3160	Data Base Design and Implementation
ACCT 3140	Accounting Information Systems

Cooperative Education Program. Management Students majoring in Management Information Systems are strongly encouraged to participate in the University cooperative education program, which provides substantial educational and employment opportunities. Furthermore, many companies hire only students who have participated in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. Participation must be approved in advance. Contact the University Career Center for more information.

SUGGESTED SCHEDULE:

MANAGEMENT INFORMATION SYSTEMS MAJOR

Freshman Year	
ENGL 1101 ¹	3
MATH 1100.....	3
Science with lab.....	4
Social Science (Gen Ed).....	3
LBST 1101, 1102, 1103, 1104 or 1105.....	3

ENGL 1102 ¹	3
MATH 1120 ^{1 3}	3
Science without lab.....	3
LBST 2101.....	3
Elective.....	3

Sophomore Year

ACCT 2121 ¹	3
ECON 2101 ¹	3
STAT 1220 ¹	3
Writing Intensive.....	3
LBST 2102.....	3

ACCT 2122 ¹	3
ECON 2102 ¹	3
LBST 2211, 2212, 2213, 2214 or 2215.....	3
INFO 2130 ¹	3
ITCS/INFO 2231.....	3
Elective.....	3

Junior Year

FINN 3120.....	3
MGMT 3140.....	3
OPER 3100.....	3
MKTG 3110.....	3
Elective.....	3

INFO 3231.....	3
INFO 3233.....	3
INFO 3229.....	3
MGMT 3160 (W).....	3
Elective.....	3

Senior Year

BLAW 3150.....	3
INFO 3234.....	3
ECON 3125.....	3
Elective.....	3
MIS Elective.....	3

INFO 3130.....	3
MIS Elective.....	3
MGMT 3280 ²	3
INFO 3235 or INFO 3240.....	3

¹Prerequisite for upper division required business courses.

²To be taken after all 3000 level required business core courses have been filled.

³MATH 1141 (Differential and Integral Calculus I) may be substituted for MATH 1120.

Students preparing for graduate studies are advised to take MATH 1141.

MANAGEMENT INFORMATION SYSTEMS MINOR

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 the design, 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 MIS 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 MIS 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 such as EDS, Price Waterhouse, and Sprint. These firms are in the forefront of a trend in the information industry to employ qualified graduates of business programs who are knowledgeable about their primary field of study but are also conversant about how computing technology relates to and may be applied within their primary field.

This is the focus of the minor in MIS: to impart a framework for understanding MIS and for utilizing MIS tools to the non-MIS majors. 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 MIS professionals and their "home" departments, as sales specialists for specialized software/applications systems, and as technical representatives.

The minor in MIS is directed not only at UNC Charlotte students majoring in Business but also those majoring in other Colleges. The benefits of a minor in MIS 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 MIS classes is that students learn to effectively use technology in business settings. A minor in MIS requires a minimum of 15 hours. All prerequisite courses are the students' responsibility.

The following courses are required:

INFO 2130	Introduction to Business Computing
ITCS/INFO 2231	Introduction to Business Programming
INFO 3231	Business Application Development
INFO 3233	Business Database Systems

Plus, students must choose any two of the following:

ACCT 3340	Accounting Information Systems
INFO 3229	Business Data Communications
INFO 3000	Special Topics in MIS
INFO 3234	Business Information Systems Development
INFO 3235	Advanced Business Information Systems Development
INFO 3236	Decision Support Systems
INFO 3238	Current Issues in the Management of Information Systems
INFO 3240	Fundamentals of eBusiness

INDUSTRIAL AND OPERATIONS MANAGEMENT MAJOR

The primary objective of the Industrial and Operations Management (IOM) major is to provide an understanding of technical and systematic approaches to designing production/operations systems and solving business problems. Emphasis is on the tools of the field.

Progression Requirements. Students seeking admission to the Industrial and Operations Management Major will be classified as Pre-Business students within the Belk College of Business until they qualify for acceptance into an upper-division major. To be accepted as a major in

104 College of Business

Industrial and Operations Management and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) have a GPA of at least 2.5 for all academic work; (3) completed ACCT 2121 and 2122, ECON 2101 and 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grade of C in each course; and (4) filed an approved "Program of Study" in the Belk College Advising Center.

In order to progress into the 3000-level business core courses (BLAW 3150, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MGMT 3280, MKTG 3110, and OPER 3100), pre-accounting, pre-business, and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be cancelled.

Students may attempt each of the seven courses (listed above in item 2) two times. Students who are not successful in earning the required 2.5 GPA are ineligible for continuation in The Belk College.

The following courses are required:

OPER	3201	Advanced Operations Management
OPER	3203	Management Science
OPER	3204	Management of Service and Project Operations
OPER	3206	Managing for Quality

One of the following courses is required:

OPER	3000	Topics in Operations Management
OPER	3208	Supply Chain Management
INFO	3231	Business Application Development
INFO	3233	Business Database Systems
INFO	3234	Business Information Systems Development
INFO	3236	Business Decision Support Systems
INFO	3239	Business Data Communications
MKTG	3217	Transportation and Logistics Marketing
INET	3133	Quality Control
ENGR	3670	Total Quality Systems

Residency Requirements: All students must satisfy the College residency requirements.

SUGGESTED SCHEDULE: INDUSTRIAL AND OPERATIONS MANAGEMENT MAJOR

Freshman Year

ENGL 1101 ¹	3
MATH 1100	3
Science with lab	4
Social Science (Gen Ed)	3
LBST 1101, 1102, 1103, 1104 or 1105	3

ENGL 1102 ¹	3
MATH 1120 ^{1,3}	3
Science without lab	3
LBST 2101	3
Elective	3

Sophomore Year

ACCT 2121 ¹	3

ECON 2101 ¹	3
STAT 1220 ¹	3
Writing Intensive	3
LBST 2102	3

ACCT 2122 ¹	3
ECON 2102 ¹	3
LBST 2211, 2212, 2213, 2214 or 2215	3
INFO 2130 ¹	3
Elective	3

Junior Year

OPER 3100	3
MGMT 3140	3
BLAW 3150	3
Elective	3
Elective	3

OPER 3203	3
FINN 3120	3
MGMT 3160 (W)	3
MKTG 3110	3
OPER Elective	3

Senior Year

INFO 3130	3
ECON 3125	3
OPER 3201	3
OPER 3206	3
Electives	6

MGMT 3280 ²	3
OPER Electives	6
OPER 3204	3
Elective	3

¹Prerequisite for upper division required business courses.

²To be taken after all 3000 level required business core courses have been filled.

³MATH 1141 (Differential and Integral Calculus I) may be substituted for MATH 1120.

Students preparing for graduate studies are advised to take MATH 1141.

Department of Economics

Interim Chair: Zuber; *Professors:* Amato, Connaughton, Davis, Gandar, Madsen, Schwarz; *Professor Emeriti:* Neel, Wubben; *Associate Professors:* Lin, Liner, McGregor, Russo, Tseng, Tucker; *Associate Professor Emeritus:* Rogers; *Assistant Professors:* Radchenko, Sewell, Troyer; *Lecturers:* Krapl, Stivender, Waggy

The study of Economics offers students a problem-solving discipline to foster their intellectual and career development. It provides students 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.

The Economics Department 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 business administration emphasis program. Students planning to pursue a career in education, enter graduate school in economics, or attend law school are encouraged to pursue the program with liberal arts emphasis.

Progression Requirements. Students seeking admission to the Department of Economics will be classified as Pre-Economics students within the Belk College of Business until they qualify for acceptance into the Economics major. To be accepted as a major in Economics, students must have: (1) attained junior standing; (2) have a GPA of at least 2.5 for all academic work; (3) completed ENGL 1101 and 1102 (or ENGL 1103), ECON 2101 and 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grade of C in each course; and (4) filed an approved "Program of Study" in the Belk College Advising Center.

In order to progress into the 3000-level business core courses (BLAW 3150, ECON3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MKTG 3110, OPER 3100), pre-accounting, pre-business and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be voided.

Students may attempt each of the seven progression courses (ENGL 1101 and 1102, ECON 2101 and 2102, INFO 2130, MATH 1120, and STAT 1220) a maximum of two times.

ECONOMICS MAJOR

All majors in Economics must complete MGMT 3160 (Business Communications) prior to registering for any 4000 level Economics course. Students transferring into the Economics program as a senior must complete MGMT 3160 their first semester in the program.

A student majoring in Economics must indicate active progress toward the completion of the requirements for the major in Economics. Failure to do so will result in the student being dropped as an Economics major. A student must then be accepted into another major or "undecided" category to continue enrollment at the University.

In computing the GPA in the major all required courses are included. Not more than one grade of D will count toward the specified hours for a major in Economics. To be eligible to graduate, a student must have achieved a GPA of 2.0 in all academic work, and a GPA of 2.0 in all coursework required by the College of Business.

It is recommended that students who plan graduate work in economics complete MATH 1241, ECON 4100, and, as available, ECON 4112 and 4117. Also, they should

consider additional work in mathematics but should consult with their advisors concerning specific courses.

Residency Requirements: All students must meet the College Residency Requirements.

BACHELOR OF SCIENCE

Business Administration Emphasis. A major in Economics, with business administration electives, leading to the B.S. degree consists of 63 hours specified as follows:

- I. Mathematics: Basic Concepts of Mathematics (MATH 1100) 3
Calculus (MATH 1120) 3
Elements of Statistics (STAT 1220) 3
Business Computing (INFO 2130) 3
- II. Economics:
Principles of Economics (ECON 2101 and 2102) 6
Managerial Economics (ECON 3125) 3
Econometrics (ECON 3112) 3
Industrial Organization and Public Policy (ECON 4180) 3
Intermediate Microeconomics (ECON 3122) 3
Intermediate Macroeconomics (ECON 3123) 3
- III. Business Administration and Accounting:
Principles of Accounting (ACCT 2121 and 2122) 6
Financial Management (FINN 3120) 3
Business Communications (MGMT 3160) 3

Two of the following 6
Marketing Management (MKTG 3110)
Business Law I (BLAW 3150)
Operations Management (OPER 3100)
Management Concepts and Practices (MGMT 3140)
- IV. Economics Electives: 12
To be selected by the student from the 3000 and 4000 level offerings of the Department of Economics

Liberal Arts Emphasis. A major in Economics, with a minor in a Liberal Arts area, leading to the B.S. in Economics degree consists of 60-66 hours specified as follows:

- I. Mathematics (12 hours):
Basic Concepts of Mathematics (MATH 1100) 3
Calculus (MATH 1120) 3
Elements of Statistics (STAT 1220) 3
Business Computing (INFO 2130) 3
- II. Economics Core Requirements (21 hours):
Principles of Economics (ECON 2101 & 2102) .6
Business Communications (MGMT 3160) 3
Intermediate Microeconomics (ECON 3122) 3
Intermediate Macroeconomics (ECON 3123) 3
Econometrics (ECON 3112) 3
History of Economic Thought (ECON 4177) 3
- III. Minor in Liberal Arts area or other approved area (15-21 hours):
 - Completion of a minor in one of the following disciplines: Actuarial Mathematics, African-

American and African 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, Women's Studies.

- Students may choose a minor not listed above with the approval of the Chair of the Department of Economics.

** Students completing this minor must also meet the language requirement hours. (The International Business concentration in the International Studies minor is excluded from the list of qualified minors.)*

IV. Economics Electives (12 hours):

- Students must choose four Economics electives at the 3000 level or above with at least one of the four at the 4000 level.

Cooperative Education Program. Economics majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the eight progression courses required by the Department of Economics. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor and must be approved in advance. Contact the University Career Center for more information.

ECONOMICS MINOR

A minor in Economics requires: 18 semester hours of economics to include ECON 2101, 2102 and either 3125 or 3122, and at least nine additional hours at the 3000 or 4000 level. A GPA of at least 2.0 is required in the 18 hours.

In computing the GPA in the minor all required courses are included. Not more than one grade of D will count toward the specified hours for a minor in Economics. The second and any subsequent grade(s) in a repeated course(s) will be included in all GPA calculations.

SUGGESTED SCHEDULE: BUSINESS ADMINISTRATION EMPHASIS (Economics Major)

Freshman Year

ENGL 1101.....	3
MATH 1100.....	3
Science with lab.....	4
LBST 1101, 1102, 1103, 1104 or 1105.....	3
Electives.....	2

ENGL 1102.....	3
MATH 1120.....	3
Social Science (Gen Ed).....	3
Science without lab.....	3
Electives.....	3

Sophomore Year

ECON 2101	3
INFO 2130.....	3

ACCT 2121.....	3
LBST 2101.....	3
Writing Intensive.....	3

ECON 2102.....	3
ACCT 2122.....	3
STAT 1220.....	3
LBST 2102.....	3
LBST 2211, 2212, 2213, 2214 or 2215	3

Junior Year

ECON 3112.....	3
ECON 3122	3
MGMT 3160 (W).....	3
Economics Elective.....	3
Electives.....	3

ECON 3125.....	3
ECON 3123	3
MKTG 3110, BLAW 3150, OPER 3100 or MGMT 3140.....	3
Economics Elective.....	3
Electives.....	3

Senior Year

ECON 4180.....	3
FINN 3120	3
Economics Elective.....	3
Electives.....	6

MKTG 3110, BLAW 3150, OPER 3100, or MGMT 3140.....	3
Economics Elective.....	3
Electives.....	9

SUGGESTED SCHEDULE: LIBERAL ARTS EMPHASIS (Economics Major)

Freshman Year

ENGL 1101.....	3
MATH 1100.....	3
Science with lab.....	4
LBST 1101, 1102, 1103, 1104 or 1105.....	3
Electives.....	2

ENGL 1102.....	3
MATH 1120.....	3
Science without lab.....	3
Electives.....	6

Sophomore Year

ECON 2101	3
INFO 2130	3
Social Science (Gen Ed).....	3
LBST 2101	3
Minor Requirement.....	3

ECON 2102.....	3
Minor Requirement.....	3
STAT 1220.....	3
LBST 2102.....	3
Electives.....	3

Junior Year

ECON 3112.....	3
ECON 3122.....	3
Minor Requirement.....	3

MGMT 3160 (W)	3
LBST 2211, 2212, 2213, 2214 or 2215	3
ECON 3123	3
Economics Elective	3
Minor Requirement	3
Electives	6

Senior Year

Minor Requirement	3
Economics Electives	6
Electives or Minor Requirements	6
ECON 4177 (W)	3
Economics Elective	3
Electives	6
Electives or Minor Requirement	3

Department of Finance and Business Law

Chair and The Torrence E. Hemby Sr. Distinguished Professor in Banking: Professor Sealey; *Dean and The James J. Harris Professor of Risk Management and Insurance:* Lilly; *The Endowed Professorship in Insurance:* Dorfman; *The John Crosland Sr. Endowed Professorship in Real Estate and Development:* Ott; *Professors:* Nunnally, Trosch; *Associate Professors:* Blenman, Buttner, Kennedy, Plath; *Assistant Professors:* Clark, Neale; *Lecturers:* Coggin, Drawbaugh, Miller

The Department of Finance and Business Law 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:

- the concepts, processes and institutions involved in planning for, acquiring and allocating capital with respect to modern business organizations;
- the economic and legal environment of organizations, and the myriad social and political influences on business;
- the concepts and methods of economics, accounting, mathematics, management, information systems, and business law.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

A program of study in the Department of Finance and Business Law leads to a Bachelor of Science in Business Administration degree with a major in Finance. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business, the requisite number of hours in the major (as described below), six hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the six hours of mathematics and statistics, at least 45 hours of coursework must be taken outside of The Belk College of Business.

Progression Requirements. Students seeking admission

to the Department of Finance and Business Law will be classified as Pre-Business students within the Belk College of Business until they qualify for acceptance into an upper-division major. To be accepted as a major in Finance and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) have a GPA of at least 2.5 for all academic work; (3) completed ACCT 2121 and 2122, ECON 2101 and 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grade of C in each course; and (4) filed an approved "Program of Study" in the Belk College Advising Center.

Students may attempt each of the seven courses in (3) above a maximum of two times. Students who are not successful in earning the required 2.5 GPA are ineligible for continuation in the Belk College.

Pre-business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a C in INFO 2130 or have passed the College Microcomputer Proficiency Test. **Students must complete all requirements and be accepted into an upper division major to be eligible to enroll in MGMT 3280 and the upper-division Finance business electives.**

In order to progress into the 3000-level business core courses (BLAW 3150, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MKTG 3110, and OPER 3100), pre-accounting, pre-business, and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be cancelled.

Core, Mathematics, and Statistics Requirements.

Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 2101, 2102 and 3125; FINN 3120; INFO 2130 and 3130; MGMT 3140, 3160 and 3280; MKTG 3110; OPER 3100; MATH 1100 and 1120; and STAT 1220.

FINANCE MAJOR: Within the Finance major, students must select one of two concentrations: (1) Finance or (2) Risk Management and Insurance. In addition to completing the College core, mathematics and statistics requirements (51 hours), students majoring in Finance with a concentration in Finance, must complete 18 hours of coursework in the major as described below under the Finance Concentration, and those students concentrating in Risk Management and Insurance must complete 15 hours of coursework as described below under the Risk Management and Insurance Concentration. A student must have a GPA of at least 2.0 in all hours attempted and a GPA of at least 2.0 in all hours required by the College of Business, and no more than one D left standing in these courses. No course may be repeated more than twice.

Finance Concentration

Required courses:

FINN 3220	Financial Analysis
FINN 3222	Investments
FINN 3226	Financial Theory and Practice

AND at least two (2) and no more than three (3) additional courses from the following:

FINN 3221	Financial Institutions and Markets
FINN 3223	International Financial Management
FINN 3224	Applied Business Finance
FINN 3225	Commercial Bank Management
BLAW 3250	Business Law II

AND if only two (2) courses are selected from the above list, then one (1) additional course from the following:

FINN 3261	Real Estate Finance
FINN 3271	Principles of Risk Management and Insurance
FINN 3272	Life Insurance and Professional Financial Planning
FINN 3800	Directed Study (Chair approval required)
FINN 4159	Student Managed Investment Fund
ACCT 3311	Intermediate Financial Accounting I
ECON 3112	Econometrics
ECON 3115	Money and Banking
OPER 3204	Management of Service Operations

Risk Management and Insurance Concentration

Required courses:

FINN 3271	Principles of Risk Management and Insurance
FINN 3272	Life Insurance and Professional Financial Planning
FINN 3273	Property and Casualty Insurance
FINN 3275	Advanced Risk Management and Insurance

AND one (1) additional course from the following:

FINN 3222	Investments
FINN 3276	Employee Benefits
FINN 3277	Legal Aspects of Insurance
FINN 3800	Directed Study (Chair approval required)
MKTG 3213	Personal Selling and Sales Management
MGMT 3273	New Venture Creation

Cooperative Education Program. Finance majors may obtain practical work experience related to their major by participating in the University cooperative education program.

Department of Management

Interim Chair: Professor Sealey; *Professors:* Curran, Kohut, Tepper; *Associate Professors:* Beggs, Booth, Carpano, Conboy, Jernigan, Kerr, Rubin, Zellars; *Assistant Professors:* Fabian, Henle, Michel, Ndofo, Pugh; *Lecturers:* Dixon-Brown, Sgritta, Wartham.

A program of study in the Department of Management leads to a Bachelor of Science in Business Administration degree with a major in Management. The Management major is designed to teach students to plan, organize, direct, and control business activities in both the public and private sectors. Students develop skills in decision making, leadership, motivation, problem solving and teamwork.

Within the Management major, students must select one of three concentrations: Managerial Leadership, Human Resource Management or Entrepreneurship. The Concentration in Managerial Leadership provides a rigorous

course of study in the history, theory, ethics, decision-making techniques, and communication skills that make for effective leadership. The objectives of the Concentration are to develop in each student the conceptual tools that support the exercise of leadership in a variety of settings. The concentration in Human Resource Management prepares students to become human resource management professionals. Coursework prepares students for positions in staffing, recruiting, training and development, compensation administration, and labor relations. The concentration in Entrepreneurship prepares students to work in small or medium-sized businesses or become entrepreneurs. Coursework prepares students to develop an overall concept for a business and identify the problems that must be considered and resolved if the venture is to be successful.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

A major in Management leading to the B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of progression and core courses within The Belk College of Business, 15 hours in the management major, six hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the six hours of mathematics and statistics, at least 45 hours of coursework must be taken outside The Belk College of Business. Students electing the Management major must meet the following requirements:

Progression Requirements. Students seeking admission to the Department of Management will be classified as Pre-Business students within The Belk College of Business until they qualify for acceptance into an upper-division major. To be accepted as a major in Management and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) have a GPA of at least 2.5 for all academic work; (3) completed ACCT 2121 and 2122, ECON 2101 and 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grade of C in each course; and (4) filed an approved "Program of Study" in The Belk College Advising Center.

Students may attempt each of the seven courses (listed above in item 3) two times. Students who are not successful in earning the required 2.5 GPA are ineligible for continuation in The Belk College.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a C in INFO 2130 or have passed the College Microcomputer Proficiency Test. Students must complete all requirements and be admitted to an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.

In order to progress into the 3000-level business core courses (BLAW 3150, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MKTG 3110, and OPER 3100), pre-accounting, pre-business, and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be cancelled.

Core Requirements. Courses that fulfill the College core requirements for the major are BLAW 3150; ECON

3125; FINN 3120; INFO 3130; MGMT 3140, 3160, and 3280; MKTG 3110 and OPER 3100.

Major Requirements. In addition to progression and core requirements, students majoring in Management must complete an additional 15 hours in management from one of the following three concentrations:

I. Managerial Leadership Concentration

MGMT 3247	Managerial Leadership
MGMT 3260	Managerial Communication
MGMT 3282	Managerial Ethics

Select two of the following courses:

MGMT 3241	Human Resource Management
MGMT 3243	Employment Law
MGMT 3246	Management Perspectives
MGMT 3273	New Venture Creation
MGMT 3274	Int'l Business Processes & Problems

II. Human Resource Management Concentration

MGMT 3241	Human Resource Management
MGMT 3244	Advanced Human Resource Management
MGMT 3243	Employment Law

Select two of the following courses:

MGMT 3242	Compensation Administration
MGMT 3245	Human Resource Management Systems
MGMT 3246	Management Perspectives
ECON 3105	Industrial Relations
FINN 3276	Employee Benefits

Note: Students electing this concentration are encouraged to select as part of their coursework outside The Belk College of Business such courses as PSYC 3140 (Basic Processes in Psychological Assessment); PSYC 3114 (Motivation), PSYC 3130 (Social Psychology), PSYC 3173 (Psychological Bases of Training Programs); PSYC 3670 (Seminar in Industrial Psychology); and SOCY 4112 (Sociology of Work).

III. Entrepreneurship Concentration

MGMT 3273	New Venture Creation
MGMT 3277	Innovation, Creativity, & Intellectual Property
MGMT 3283	New Venture Experience
MGMT 3285	New Venture Financing & Risk Assessment

Select one of the following courses:

MGMT 3241	Human Resource Management
MGMT 3246	Management Perspectives
MGMT 3260	Managerial Communication
MGMT 3274	Int'l Business Processes & Problems
MGMT 3282	Managerial Ethics

Electives can also be selected from other courses in the Belk College of Business subject to the approval of the Department Chairperson or the required designated faculty.

Grade Point Average (GPA) Requirements. A student must have a GPA of at least 2.0 in all coursework at UNC Charlotte and in all hours required by the College of Business, and no more than one D left standing. No course may be repeated more than twice.

Residency Requirements. All students must satisfy the College Residency Requirements.

Cooperative Education Program. Management majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor in the University Career Center. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. Experiences are arranged in coordination with the University Career Center.

SUGGESTED SCHEDULE: MANAGERIAL LEADERSHIP HUMAN RESOURCE MANAGEMENT, AND ENTREPRENEURSHIP CONCENTRATIONS

Freshman Year

ENGL 1101	3
MATH 1100	3
Science with lab	4
Social Science (Gen Ed)	3
LBST 1101, 1102, 1103, 1104 or 1105	3

ENGL 1102	3
MATH 1120	3
Science without lab	3
LBST 2101	3
Elective	3

Sophomore Year

ACCT 2121	3
ECON 2101	3
STAT 1220	3
Writing Intensive	3
LBST 2102	3

ACCT 2122	3
ECON 2102	3
LBST 2211, 2212, 2213, 2214 or 2215	3
INFO 2130	3
Elective	4

Entrepreneurship Concentration

Junior Year

MGMT 3140	3
FINN 3120	3
MKTG 3110	3
OPER 3100	3
Elective	3

MGMT 3160 (W)	3
MGMT 3246	3
MGMT 3273	3
BLAW 3150	3
Elective	3

Senior Year

MGMT 3277	3
ECON 3125	3
INFO 3130	3
Elective	3
Elective	3

MGMT 3280	3
MGMT 3283	3
MGMT 3285	3
Elective	3
Elective	3

Human Resource Management Concentration

Junior Year

MGMT 3140	3
MGMT 3160 (W)	3
MKTG 3110	3
OPER 3100	3
Elective	3

MGMT 3246	3
MGMT 3241	3
ECON 3125	3
BLAW 3150	3
Elective	3

Senior Year

FINN 3120	3
MGMT 3243	3
HR Elective	3
Elective	3
Elective	3

MGMT 3280	3
MGMT 3244	3
INFO 3130	3
Elective	3
Elective	3

Managerial Leadership Concentration

Junior Year

MGMT 3140	3
MGMT 3160 (W)	3
MKTG 3110	3
OPER 3100	3
Elective	3

MGMT 3246	3
MGMT 3247	3
ECON 3125	3
BLAW 3150	3
Elective	3

Senior Year

FINN 3120	3
MGMT Elective	3
MGMT 3282	3
Elective	3
Elective	3

MGMT 3280	3
INFO 3130	3
MGMT 3260	3

Elective	3
Elective	3

Department of Marketing

Chairperson: Professor Swayne; *Professors:* C. Amato, Shao, Stevenson; *Associate Professor:* Bodkin, Erevelles; *Assistant Professors:* Conchar, Peters; *Lecturer:* Fox

The Department of Marketing 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 background at the undergraduate level prior to undertaking graduate work.

The study of marketing provides students with an opportunity to prepare for careers in marketing management, product management, sales, advertising and promotions management, marketing research, retailing, and international marketing.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Students majoring in Marketing receive a Bachelor of Science in Business Administration degree with a major in Marketing. The B.S.B.A. degree requires a minimum of 120 semester hours, including 42 hours of core courses within The Belk College of Business, 18 hours in the marketing major beyond the core course, nine hours of mathematics and statistics, and completion of the University General Education requirements. In addition to the nine hours of mathematics and statistics, at least 42 hours of coursework must be taken outside The Belk College of Business.

Courses that fulfill the College core and mathematics and statistics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 2101, 2102 and 3125; FINN 3120; INFO 2130 and 3130; MGMT 3140, 3160 and 3280; MKTG 3110; OPER 3100; MATH 1100 and 1120; and STAT 1220.

MARKETING MAJOR

In addition to College core and mathematics and statistics requirements (51 hours) students majoring in Marketing must complete MKTG 3219 (Marketing Strategy) and an additional 15 hours from the following courses: MKTG 3210 (Marketing Research and Analysis), MKTG 3211 (Advertising and Promotions Management), MKTG 3212 (Retailing Management), MKTG 3213 (Professional Selling and Sales Management), MKTG 3214 (Internet Marketing), MKTG 3215 (Global Marketing), MKTG 3216 (Consumer Behavior), MKTG 3400 (Marketing Internship), and MKTG 3800 (Directed Study). A student must have a GPA of at least 2.0 in the above 69 hours with no more than one D left standing. No course may be repeated more than twice. Consult the Department of Marketing for a suggested schedule to complete the B.S.B.A. degree with a major in Marketing.

Progression Requirements. Students seeking admission to the Department of Marketing will be classified as Pre-

Business students within The Belk College of Business until they qualify for acceptance into an upper-division major. To be accepted as a major in Marketing and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) have a GPA of at least 2.5 for all academic work; (3) completed ACCT 2121 and 2122, ECON 2101 and 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grade of C in each course; and (4) filed an approved "Program of Study" in the Belk College Advising Center.

Students may attempt each of the seven courses (listed in item 2 above) two times. Students who are not successful in earning the required 2.5 GPA are ineligible for continuation in The Belk College.

Pre-Business students who have earned at least 60 hours are permitted to enroll in core business courses if they have met the course prerequisites and have earned at least a C in INFO 2130 or have passed the College Microcomputer Proficiency Test. Students must complete all requirements to be eligible to enroll in MKTG 3219, MGMT 3280, or the upper-division business electives.

Residency Requirements: All students must satisfy the college residency requirements.

Cooperative Education Program. Marketing majors may obtain practical work experience related to their major by participating in the cooperative education program. To be eligible for cooperative education, students must be juniors who have an overall GPA of at least 2.5 and have completed the progression courses required by The Belk College of Business. Transfer students must complete at least 12 hours at UNC Charlotte to be eligible for cooperative education. Completion of courses related to the co-op position may be required prior to the co-op work experience. These courses will be established by the Co-op Advisor. Students must complete either two full-time alternating semesters of work or three consecutive part-time work semesters while taking a reduced academic load of no more than nine credit hours. The Department of Marketing coordinates the co-op experience with the University Career Center.

Internship. Because the Department is committed to experiential learning, it provides for Marketing majors to use one internship for academic credit. A proposal must be approved by the Department Chair before starting the internship. A minimum of MKTG 3110 (Marketing Concepts) with a C or better, an overall GPA of at least 2.0 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.

INTERNATIONAL BUSINESS MAJOR

Director: Alan T. Shao. Faculty are not listed due to the interdisciplinary nature of the major.

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.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

Students majoring in International Business receive a Bachelor of Science in Business Administration (B.S.B.A.) degree with a major in International Business. The B.S.B.A. degree requires a minimum of 120 semester hours, including 48 hours of core courses within The Belk College of Business, six hours of mathematics and statistics, and completion of the University General Education Requirements. In addition to the six hours of mathematics and statistics, at least 45 hours of coursework must be taken outside The Belk College of Business.

Courses which fulfill the College core and mathematics requirements are: ACCT 2121, 2122; BLAW 3150; ECON 2101, 2102, and 3125; FINN 3120; INFO 2130, 3130; MGMT 3140, 3160, 3280; MKTG 3110; OPER 3100; MATH 1120; and STAT 1220.

Progression Requirements. Students seeking admission to the International Business major will be classified as Pre-Business students within the Belk College of Business until they qualify for acceptance into an upper-division major. To be accepted as a major in International Business and to progress into the upper-division of the College, students must have: (1) attained junior standing; (2) have a GPA of at least 2.5 for all academic work; (3) completed ACCT 2121 and 2122, ECON 2101 and 2102, MATH 1120, STAT 1220, and INFO 2130 with a minimum grade of C in each course; and (4) filed an approved "Program of Study" in the Belk College Advising Center.

Students may attempt each of the seven courses (listed above in the third bullet point) two times. All attempts are used in the calculation of overall GPA and major GPA. To be eligible to graduate, a student must have a GPA of at least 2.0 in all courses attempted, a 2.0 in all courses requested by the College of Business, and no more than one D may be left standing.

In order to progress into the 3000-level business core courses (BLAW 3150, ECON 3125, FINN 3120, INFO 3130, MGMT 3140, MGMT 3160, MKTG 3110, OPER 3100), pre-accounting, pre-business and pre-economics majors must have earned a minimum cumulative GPA of 2.5. If a student fails to meet this minimum GPA requirement prior to the start of the semester, his or her registration for any of these courses will be voided. Students must complete all requirements and be admitted to an upper-division major to be eligible to enroll in MGMT 3280 and the upper-division business electives.

Major Requirements

In addition to completing the College core and mathematics and statistics requirements, students majoring in International Business must:

- **Complete five International Business courses: (15 hours) 5 required courses:**
 - ECON 3171 (International Business Economics)
 - MGMT 3274 (International Business Processes and Problems)

- ❑ FINN 3223 (International Financial Management)
- ❑ MKTG 3215 (International Marketing Management)
- ❑ MGMT 3275 (International Management)

The five required courses above must be taken sequentially in the following order:

- First course: ECON 3171
- Second course: MGMT 3274
- Third and fourth courses: MKTG 3215, FINN 3223
- Fifth course: MGMT 3275

Before International Business majors can enroll in any of the five required courses listed above, they must complete the following prerequisite(s) for each course:

- ECON 3171: ECON 2101; ECON 2102
- MGMT 3274: ECON 3171; junior standing
- FINN 3223: FINN 3120; ECON 3171; MGMT 3274
- MKTG 3215: ECON 3171; MGMT 3274
- MGMT 3275: ECON 3171; MGMT 3274; FINN 3223; MKTG 3215

Note: The prerequisites listed above may differ from departmental prerequisite requirements.

- *Complete one elective course from designated list:* (3 hours)
 - ❑ AAAS 3265 (African Economic Development)
 - ❑ ACCT 3150 (International Accounting)
 - ❑ ANTH 4120 (Intercultural Communications)
 - ❑ BLAW 3253 (International Business Transactions)
 - ❑ GEOG 3105 (Geography of the Global Economy)
 - ❑ POLS 3050 (Business and Politics in the European Union)
 - ❑ POLS 3151 (International Political Economy)
 - ❑ POLS 3152 (International Organizations)
 - ❑ POLS 3153 (European Union)
 - ❑ POLS 3167 (U.S. and Japan)
 - ❑ SPAN 3029 (Cultural Dimension of Doing Business in Spanish-Speaking Countries)
 - ❑ Directed Study
 - ❑ Other courses approved by the Director of the International Business Program

The elective course may be taken anytime after the student's first semester with junior standing.

- *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 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.

- *Experiential education.* This can be fulfilled two ways: (3 hours)
 - Study abroad. This requirement may be satisfied by taking a minimum of three credit hours of any business course at a university outside the U.S. or Canada. (A Plan of Study must be pre-approved by the Director of the International Business Program.)
 - Internship. This requirement 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 Director of the International Business Program). 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.

COLLEGE OF EDUCATION

Dean: Calhoun; Associate Dean: Edwards; Assistant Dean: Hammond; Director of the Office of Teacher Education Advising and Licensure: Nixon; Director of the Office of Field Experiences: Jaus; Director of the Office of Educational Outreach: Farrar; Director of the Teaching Fellows Program: Cowan-Hathcock; Director of the Center for Math, Science, and Technology Education: Royster; Instructional Technology Specialists: Bateman, Conway, Hughes; Academic Advisors: Avery; Lawrence.

Website: <http://education.uncc.edu/coe/>

MISSION OF THE COLLEGE

The mission of the College of Education at UNC Charlotte is to prepare excellent professionals who are knowledgeable, effective, reflective, collaborative, and responsive practitioners who are leaders in their fields. This mission is accomplished by working in partnership with schools, communities, and university colleagues and in response to the University of North Carolina at Charlotte's commitment to children, families, and schools.

PROGRAM RESPONSIBILITIES AND VALUES

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 that enrich the 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.

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 FOR TEACHER EDUCATION PROGRAMS

Rising to the Challenge: Preparing Excellent Professionals

Excellent professionals possess a comprehensive knowledge base that is comprised of conceptual knowledge, pedagogical knowledge, and reflective knowledge. Conceptual knowledge relates to the individual's broad knowledge base as well as a more specialized knowledge base in the content field and knowledge of how human beings learn and develop. Pedagogical knowledge entails the understanding of methods of effective teaching: knowledge of how to teach subject matter and knowledge of how to teach the subject matter to specific learners, attention to individual differences and how to create environments that support learning. Reflective knowledge enables cogent evaluation of teaching practice, including self-appraisal. Excellent professionals understand how to blend these types of knowledge in actuating teaching and learning in positive ways. Excellent professionals make connections between the knowledge base and the uses of this knowledge. Four particular uses of knowledge are emphasized within professional education programs at UNC Charlotte.

- To provide effective instruction in order to have a positive impact on P-12 student learning
- To respond to the needs of P-12 learners and to provide developmentally appropriate, age appropriate, individually appropriate, and culturally responsive instruction
- To collaborate with families, communities, and colleagues to benefit children, youth, and young adults
- To provide effective leadership for the improvement of professional practices at a variety of levels for the benefit of children, youth, and young adults.

The UNC Charlotte community charged with the preparation of teachers, including the College of Education and the College of Arts and Sciences and their respective departments, contribute to the knowledge base through course instruction and other worthy experiences. In summary, UNC Charlotte develops excellent professionals who are knowledgeable, effective, reflective, responsive to equity and diversity, collaborative, and who are leaders in their profession.

UNDERGRADUATE PROGRAMS

The College of Education offers the following majors:

- Child and Family Development: licensure (Birth-Kindergarten) and non-licensure tracks
- Elementary Education (grades K-6)
- Middle Grades Education (grades 6-9)
- Special Education: General Curriculum (grades K-12)
- Special Education: Adapted Curriculum (grades K-12)

In collaboration with appropriate departments in the College of Arts and Sciences, it offers professional education coursework that can lead to licensure to teach in the following areas of Secondary Education (grades 9-12):

- Biology
- Chemistry
- Comprehensive Science
- Comprehensive Social Studies
- Earth Science
- English
- History
- Mathematics
- Physics

In collaboration with appropriate departments in the College of Arts and Sciences, it offers professional education coursework that can lead to licensure to teach in the following areas of K-12 Education:

- Art
- Dance
- Music
- Theatre
- French
- German
- Spanish

All professional education programs in the College of Education are approved by the North Carolina Department of Public Instruction (NCDPI), and they have continuing accreditation from the National Council for Accreditation of Teacher Education (NCATE).

TEACHER EDUCATION POLICIES AND PROCEDURES

Admission to a Teacher Education Program. Students should apply for admission to a specific teacher education program during their sophomore year, and they must complete the admissions process in order to enroll in any professional education courses at the 3000 level or higher.

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 semester hours in University courses;
2. A grade of C or higher in both EDUC 2100 and SPED 2100;
3. Passing scores on the Praxis I: Academic Skills Assessments in Reading, Writing, and Mathematics; and
4. 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). Information about these additional requirements and about procedures for applying for admission to a teacher education program can be obtained in the Office of Teacher Education Advising and Licensure (TEAL) in the College of Education. Students in Art, Music, Dance, or Theatre especially should check for specific admission requirements in their major department.

Retention in a Teacher Education Program. There are two minimum requirements for retention in a teacher education program:

1. A grade of C or higher (a) in all professional education courses *and* (b) in all courses in the student's area of teaching specialization; and
2. GPA of 2.5 or higher (a) overall, (b) in all professional education courses, *and* (c) in the student's area of teaching specialization.

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.

Admission to Year-long Internship and Student Teaching. Most teacher education programs incorporate student teaching in a year-long internship that spans a student's senior year. The year-long internship consists of one semester of intensive clinical work in the classroom in association with regular coursework. This "clinical" semester is followed by a full semester of student teaching, usually completed in the same classroom.

Students must apply and be formally admitted to a year-long internship two semesters prior to the start of student teaching. In addition, during the first semester of their year-long internship they must apply and be formally admitted to student teaching. The minimum requirements for admission to student teaching are higher than the requirements for retention, as shown below:

- 1) Senior status;
- 2) Completion of all other course work in a student's program of study;
- 3) An overall GPA of 2.50 or higher in the student's total program of study
- 4) Grades of C or higher in all professional education courses and a GPA of 2.75 or higher in those courses;
- 5) Grades of C or higher in all courses in the student's area of teaching specialization and a GPA of 2.75 or higher in those courses;
- 6) Prior admission to a teacher education program
- 7) 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 year-long internship and student teaching; information about those requirements can be obtained from the program's home department. Some programs offer student teaching only once a year. Information about procedures and deadlines for applying for year-long internships and student teaching in all programs can be obtained in the Office of Field Experiences in COED 139 or on the web at <http://education.uncc.edu/ofe>.

Department of Reading and Elementary Education (REEL)

Chair: Professor Rickelman; *Professors:* H. Jaus, Passe, K. Wood; *Associate Professors:* Audette, Edwards, Finke, Green, Piel, M. Spooner, Yon; *Assistant Professors:* Douville, Fuller, Hancock, McKinney, Mraz, Rock, Taylor; *Clinical Assistant Professors:* Baucom, Chapman, Frazier, Hathcock, Luce, Marr; *Lecturers:* Fleischmann, Hopper
Website: <http://education.uncc.edu/reel/>

MAJOR IN ELEMENTARY EDUCATION: BACHELOR OF ARTS

Coordinator: Louise Baucom
Department: Reading and Elementary Education (REEL)

The B.A. program in Elementary Education qualifies graduates for an entry-level ("A") license to teach grades K-6.

Program Objectives. Graduates of the program are prepared to meet the 10 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.

Requirements. The major in Elementary Education leading to the B.A. degree requires at least 120 semester hours as follows:

General Education (35-48 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Teacher Education Advising and Licensure (TEAL) Office and finally approved by the student's major advisor after admission to the Teacher Education Program in Elementary Education. General Education requirements may also be met through the "Articulation Agreement" with North Carolina Community Colleges.

An Academic Concentration (18 hours, including two courses that also meet General Education Requirements) is required in one of the following six subject areas relevant to an elementary school classroom:

- English and Communications
- Mathematics
- Science
- Social Studies
- Global Studies and Foreign Language
- Visual and Performing Arts

The required and elective courses in each Academic Concentration are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Teacher Education Advising and Licensure Office 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 in an Arts and Sciences discipline may be substituted for the academic concentration.

Related Licensure Courses (1-13 hours). If these courses or acceptable substitutes have already been taken for General Education or Academic Concentration credit, no additional courses are required.

- 1) Practicing the Creative Arts (0-3): ARTE 2121: Development Arts, or MUSC 2191: Musicianship, or DATH 1100: Exploration of Voice and Movement: The course must be in an area of the arts different from that taken for General Education,
- 2) Children's Literature (0-3): ENGL 3103: Children's Literature

Professional Education Courses (57 hours)

- EDUC 2100 An Introduction to Education and Diversity in Schools (3)
SPED 2100 Introduction to Students with Special Needs (3)

(Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program. Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses. The ELED 4121, ELED 4122, and ELED 4220 courses should be taken the semester before student teaching.)

- ELED 3110 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)
MAED 3222 Teaching Mathematics in the Elementary School, K-2 (3)
MAED 3224 Teaching Mathematics in the Elementary School, 3-6 (3)
HPKD 3228 Integrating Physical Activity and Movement in Elementary Schools (2)
HPKD 3229 Teaching Health and Safety to Elementary School Learners (2)
READ 3224 Teaching Reading to Primary Level Learners (3)
READ 3226 Teaching Reading to Intermediate Grade Learners (3)
EDUC 4290 Modifying Instruction for Learners with Diverse Needs (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 4420* Student Teaching/Seminar: K-6 Elementary Education (15)

**Enrollment in ELED 4420 requires admission to student teaching through the College's Office of Field Experiences*

Electives. The number of free electives will vary depending upon how General Education and related licensure requirements are fulfilled. Student must complete at least 120 hours to meet the University graduation requirement.

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 and Licensure (TEAL), 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 are assigned a major advisor in elementary education, who helps them plan the remainder of their program of study. Assignment of the student's major advisor is the responsibility of the Chair of the Department of Reading and Elementary Education (REEL).

Note: Upper-division elementary education courses are available on a limited basis in the summer.

Department of Middle, Secondary, and K-12 Education

Chair: Professor Jones; *Professors:* Brannon, Perez; *Associate Professors:* DiBiase, Pugalee; *Assistant Professors:* Bailey, Cook, Hartman, Heafner, Hutchison, Quach; *Clinical Assistant Professor:* V. Jaus; *Lecturer:* Foster

Website: <http://education.uncc.edu/mdsk/>

MAJOR IN MIDDLE GRADES EDUCATION: BACHELOR OF ARTS

Coordinator: Kimberly J. Hartman

Department: Middle, Secondary, and K-12 Education (MSDK)

The B.A. program in Middle Grades Education qualifies graduates for an entry-level ("A") license to teach two of the following four content areas in grades 6-9: English language arts, mathematics, science, or social studies.

Program Objectives. Graduates of the program are prepared to: implement a middle grades philosophy to its fullest intent; design curriculum that is integrated, competency- and technology-based, and relevant to students' future academic and career expectations; transform their knowledge of two disciplines so they are accessible to middle grades students; use teaching methods appropriate to the unique developmental needs of early adolescents; make informed decisions about curricular issues and instructional practices in middle grades education; demonstrate pervasive caring and innovative leadership in their work with students and colleagues; and function as lifelong learners.

Requirements. The major in Middle Grades Education leading to the B.A. degree requires 120-128 semester hours as follows:

General Education (hours vary). Course options are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Teacher Education Advising and Licensure (TEAL) and finally approved by the student's major advisor after admission to the Teacher Education Program in Middle Grades Education.

Academic Concentrations (41-48 hours). Academic Concentrations are required in two of the following four subject areas relevant to a middle grades classroom:

- English Language Arts
- Mathematics
- Science
- Social Studies

The required and elective courses in each Academic Concentration are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Teacher Education Advising and Licensure (TEAL) and finally approved by the student's major advisor after admission to the Teacher Education Program in Middle Grades Education.

Professional Education (48 hours)

EDUC 2100* An Introduction to Education and Diversity in Schools (3)

SPED 2100* Introduction to Students with Special Needs (3)

**Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program in Middle Grades Education.*

Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses. See Academic Planning Worksheet in department for course sequence.

MDLG 3130	The Early Adolescent Learner (4)
MDSK 3150	Research and Analysis of Teaching Middle and Secondary School Learners (3)
KNES 3152	Health and Safety Issues in Middle and Secondary Schools (2)
MDSK 3151	Instructional Design and the Use of Technology with Middle and Secondary School Learners (3)
MDLG 3131	The Philosophy and Curriculum of Middle Grades Education (4)
READ 3255	Integrating Reading and Writing Across Content Areas (W) (3)
MDSK 4251	Teaching Science to Middle and Secondary School Learners (3) and/or
MAED 3232	Teaching Mathematics to Middle School Learners (3) and/or
MDSK 4253	Teaching Social Studies to Middle and Secondary School Learners (3) and/or
ENGL 4254	Teaching English/Communication Skills to Middle and Secondary School Learners (3)
EDUC 4290	Modifying Instruction for Learners with Diverse Needs (2)
MDLG 4430**	Student Teaching/Seminar: 6-9 Middle Grades (15)

***Enrollment in MDLG 4430 requires admission to student teaching through the College's Office of Field Experiences*

Students are required to complete a year-long internship beginning the semester prior to student teaching and ending upon the successful completing of student teaching.

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 and Licensure (TEAL), 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).

LICENSURE IN K-12 EDUCATION IN FOREIGN LANGUAGES AND IN THE FINE AND PERFORMING ARTS

The Department of Middle, Secondary, and K-12 Education (MDSK) in the College of Education assists Departments in the College of Arts and Sciences to serve students interested in K-12 licensure for teaching French, German, Spanish, Art, Dance, Music, or Theatre Arts. With the assistance of their major advisor, students apply to the Teacher Education Program through the Office of Student Academic Services in the College of Education and through their department. Interested students are also encouraged to visit the Office of Student Academic Services at any time before applying to teacher education.

LICENSURE IN SECONDARY EDUCATION: BACHELOR OF ARTS OR BACHELOR OF SCIENCE

Coordinator: Tina Heafner

Departments: An appropriate academic department in the College of Arts and Sciences in collaboration with the Department of Middle, Secondary, and K-12 Education (MDSK) in the College of Education

The undergraduate program in Secondary Education qualifies graduates for an entry-level ("A") license to teach in one of the following subject areas in grades 9-12: English, History, Comprehensive Social Studies, Mathematics, Biology, Chemistry, Earth Sciences, Physics, or Comprehensive Science. Students major in an appropriate Arts and Sciences discipline and also complete a sequence of courses (including student teaching) in secondary education. The Comprehensive Social Studies license builds on a major in History; the Comprehensive Science license builds on a major in Earth Sciences.

Program Objectives. Graduates of the secondary education program are prepared to: design a curriculum that is integrated, competency- and technology-based, and relevant to students' future academic and career expectations; transform their knowledge of a discipline so

that it is accessible to high school students; use teaching methods appropriate to the unique developmental needs of adolescents; make informed decisions about curricular issues and instructional practices in secondary education; demonstrate pervasive caring and innovative leadership in their work with students and colleagues; and function as lifelong learners, especially in their discipline.

Degree Requirements. The undergraduate program in secondary education requires a major in the College of Arts and Sciences in a discipline relevant to the curriculum in grades 9-12 and a maximum of 128 hours as follows:

General Education (26-41 hours). These course requirements vary with a student's academic major in Arts and Sciences and are defined by faculty in each major.

Core and Related Courses in an Appropriate Arts and Sciences Major (30-78 hours). Academic majors relevant to secondary education include English, History, Mathematics, Biology, Chemistry, Earth Sciences, and Physics. The requirements for each major are defined by faculty in that major.

Secondary Education (43 hours)

EDUC 2100* An Introduction to Education and Diversity in Schools (3)
SPED 2100* Introduction to Students with Special Needs (3)
SECD 2140 The Adolescent Learner (3)

**Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better for the student to qualify for admission to the Teacher Education Program in the selected field of secondary education.*

Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses:

SECD 3141 Secondary Schools (3)
MDSK 3150 Research and Analysis of Teaching Middle and Secondary School Learners (3)
MDSK 3151 Instructional Design and the Use of Technology with Middle and Secondary School Learners (3)
HPKD 3152 Health and Safety Issues in Middle and Secondary Schools (2)
READ 3255 Integrating Reading and Writing Across Content Areas (W) (3)
EDUC 4290 Modifying Instruction for Learners with Diverse Needs (3)
MDSK 4251 Teaching Science to Middle and Secondary School Learners (3) **or**
MAED 3252 Teaching Mathematics to Secondary School Learners (3) **or**
MDSK 4253 Teaching Social Studies to Middle and Secondary School Learners (3) **or**
ENGL 4254 Teaching English/Communication Skills to Middle and Secondary School Learners (3)
SECD 4441*** Student Teaching/Seminar: 9-12 Secondary Science (15) **or**
SECD 4442*** Student Teaching Seminar: 9-12 Secondary Mathematics (15) **or**
SECD 4443*** Student Teaching/Seminar: 9-12 Secondary Social Studies (15) **or**
SECD 4444*** Student Teaching/Seminar: 9-12 Secondary English (15)

***Enrollment in any one of these four student teaching courses requires admission to student teaching through the College's Office of Field Experiences

Students are required to complete a year-long internship beginning the semester prior to student teaching and ending upon the successful completing of student teaching.

Elective Courses. These courses must be approved by the student's advisor in his or her arts and sciences major.

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 (gr. 9-12) apply to the Teacher Education Program through the Office of Student Academic Services in the College of Education. Interested students are encouraged to visit the Office of Student Academic Services 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, students are assigned a second advisor in the Department of Middle, Secondary, and K-12 Education. This advisor has particular responsibility for professional education coursework. Assignment of the student's secondary education advisor is the responsibility of the Chair of the Department of Middle, Secondary, and K-12 Education (MDSK).

Department of Special Education and Child Development

Chair: Professor White; *The Lake and Edward J. Snyder, Jr. Distinguished Professor of Special Education:* Browder; *Professors:* Calhoun, F. Spooner, Test; *Associate Professor:* Campbell-Whatley, Ceglowski, Cooke, Gallagher, W. Wood; *Assistant Professors:* Anderson, Beattie, Jordan, Lo, Rhoden, Romanoff, Smith, Springs, Young; *Clinical Assistant Professor:* Baxter; *Lecturers:* Brooks, Deason, Moore, Rebich

Website: <http://education.uncc.edu/spcd/>

MAJOR IN CHILD AND FAMILY DEVELOPMENT: BACHELOR OF ARTS

Coordinator: Richard White (Interim)

Dept: Special Education and Child Development (SPCD)

The Child and Family Development program leading to the B.A. degree prepares graduates to work in educational and related settings that serve infants, toddlers, preschoolers, and kindergartners with and without disabilities. The licensure track prepares graduates for an entry-level ("A") license in birth-kindergarten (B-K) education. Admission to and retention in the Child and Family Development major, in either the licensure or non-licensure track, requires a GPA of at least 2.5.

Program Objectives. Graduates of the program are prepared to: apply their understanding of the various stages of growth and development of young children, the unique patterns with which children progress through these stages, and the factors that distinguish typical from atypical development; collect data on children's individual development and effectively access and utilize screening

and assessment procedures for children with special needs; design, adapt, implement, and evaluate developmentally appropriate learning environments for children from birth through age eight; work collaboratively with families and with interdisciplinary teams from agencies that serve young children and their families; and demonstrate positive attitudes toward children and families and a strong commitment to continuous lifelong study of young children.

MAJOR IN CHILD AND FAMILY DEVELOPMENT WITH B-K LICENSURE:

Requirements. This major requires 124-128 semester hours as follows:

General Education (31-35 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be approved by the student's major advisor.

Child and Family Development (27 hours)

- CHFD 2111 Child Study: Interpreting Children's Behavior (3)
- CHFD 2113 Infant and Early Years (3)
- CHFD 2115 Education of the Young Child (3)
- CHFD 2412 Practicum I: Observing and Recording Children's Behavior (3)
- CHFD 2416 Practicum II: The Child and the Community (3)
- CHFD 3112 Approaches to Preschool Education (3)
- CHFD 3113 Parent Education (3)
- CHFD 3115 Learning and Development (3)
- CHFD 3412 The Family and the Community (Birth to 3 Years) (3)

Professional Education (30 hours)

- EDUC 2100* An Introduction to Education and Diversity in Schools (3)
- SPED 2100* Introduction to Students with Special Needs (3)

* Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program.

Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses:

- SPED 4111 Issues in Early Intervention for Children with Disabilities (3)
- SPED 4112 Assessment of Young Children with Disabilities: B-K (3)
- SPED 4210 Methods in Early Intervention: B-K (3)
- CHFD 4410** Student Teaching/Seminar: B-K Child and Family Development (15)

**Enrollment in CHFD 4410 requires admission to student teaching through the College's Office of Field Experiences

Related Courses (15 hours)

- EIST 4100 Computer Applications in Education (3)
- SOCY – Two approved SOCY courses related to the Family Theme (6)
- PSYC – Two approved PSYC courses at or above the 3000 level that relate to cognitive, social, and/or personality development (6)

Elective Courses (13-17 hours)

These courses must be approved by the student's advisor in Child and Family Development.

MAJOR IN CHILD AND FAMILY DEVELOPMENT (Non-Licensure Track)

Requirements. This major requires 124-128 semester hours as follows:

General Education (31-35 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be approved by the student's major advisor.

Child and Family Development (42 hours)

- CHFD 2111 Child Study: Interpreting Children's Behavior (3)
- CHFD 2113 Infant and Early Years (3)
- CHFD 2115 Education of the Young Child (3)
- CHFD 2412 Practicum I: Observing and Recording Children's Behavior (3)
- CHFD 2416 Practicum II: The Child and the Community (3)
- CHFD 3112 Approaches to Preschool Education (3)
- CHFD 3113 Parent Education (3)
- CHFD 3115 Learning and Development (3)
- CHFD 3412 The Family and the Community (Birth to 3 Years) (3)
- CHFD 3416*** Internship in Child and Family Development (12)
- CHFD 3619*** Senior Seminar in Child and Family Development (3)

***Enrollment in CHFD 3416 and CHFD 3619 requires admission to the internship through the CHFD program

Related Courses (18 hours)

- EIST 4100 Computer Applications in Education (3)
- SOCY – Two approved SOCY courses related to the Family Theme (6)
- PSYC – Two approved PSYC courses at or above the 3000 level that relates to cognitive, social, and/or personality development (6)
- One approved course in any one or two of these areas: nursing, anthropology, creative arts, social work, or psychology (3)

Elective Courses (25-29 hours)

These courses must be approved by the student's advisor in Child and Family Development.

Academic Advising. Students who intend to major in Child and Family Development and to earn B-K licensure are classified as Child and Family Development majors. They are assigned a major advisor within the Child and Family Development Program, who helps them select appropriate coursework for their major.

Students who intend to major in Child and Family Development without earning B-K licensure are assigned a major advisor within the Child and Family Development Program as well.

Assignment of the student's major advisor is the responsibility of the Chair of the Department of Special Education and Child Development (SPCD).

MINOR IN CHILD AND FAMILY DEVELOPMENT

Students who have a GPA of 2.5 or better may elect a minor in Child and Family Development. A minor requires 18 semester hours: CHFD 2111, CHFD 2113, CHFD 2115, CHFD 3115, and six semester hours of child and family development elective courses.

MAJOR IN SPECIAL EDUCATION: BACHELOR OF ARTS

Coordinator: Nancy Cooke

Undergraduate Coordinator: John Beattie

Dept: Special Education and Child Development (SPCD)

The B.A. program in Special Education includes a choice of one of two licensure areas: the (1) Special Education: General Curriculum license or the (2) Special Education: Adapted Curriculum license. The Special Education: General Curriculum license qualifies graduates for an entry-level ("A") license to teach children with special needs in grades K-12 with milder disabilities who will take the North Carolina standard end of year accountability test with or without modifications. The Special Education: Adapted Curriculum license qualifies graduates for an entry-level ("A") license to teach children with special needs in grades K-12 with more severe disabilities who will take an alternative assessment for the North Carolina standard end of year accountability test.

Program Objectives. 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 10 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.

Requirements. The major in Special Education leading to the B.A. degree requires 120 semester hours as follows:

General Education (31-35 hours). Course options are listed on the program's Academic Planning Worksheet. Course selections must be initially approved by the student's Pre-Education advisor in the Office of Student Academic Services and finally approved by the student's major advisor after admission to the Teacher Education Program in Special Education. General Education requirements may also be met through the "Articulation Agreement" with North Carolina Community Colleges.

Professional Education (61 hours)

- EDUC 2100* An Introduction to Education and Diversity in Schools (3)
- SPED 2100* Introduction to Students with Special Needs (3)

* Corequisite courses EDUC 2100 and SPED 2100 should be taken during a student's sophomore year; both must be completed with a grade of C or better to qualify for admission to the Teacher Education Program in Special Education.

Admission to Teacher Education and advisor's approval are required in order to register for any of the following courses:

Courses required by both licensure areas:

CHFD	3115	Learning and Development (3) or
MDSK	3160	Learning and Development: Birth through Adolescence (3) or
PSYC	2120	Child Psychology (3) or
PSYC	2121	Adolescent Psychology (3)
SPED	3100	Introduction to General Curriculum for Special Needs Learners (3)
SPED	3173	Special Education Assessment (3)
READ	3226	Teaching Reading to Intermediate Grade Learners (W) (3) or
READ	3255	Integrating Reading Across the Content Areas (W)
SPED	3175	Instructional Planning in Special Education (3)
EIST	4100	Computer Applications in Education (3)
SPED	4170	Special Education Consultation and Collaboration (W) (3)
SPED	4270	Classroom Management (3)
KNES	3229	Teaching Health and Safety to Elementary School Learners (2) or
KNES	3152	Health and Safety Issues in Middle and Secondary Schools (2)
KNES	3228	Integrating Physical Activity and Movement in Elementary Schools (2)
EDUC	4290	Modifying Instruction for Learners with Diverse Needs (3)

Courses specific to the General Curriculum license:

SPED	4272	Teaching Mathematics to Learners with Special Needs (3)
SPED	4275	Teaching Reading to Learners with Special Needs (3)
SPED	4277	Teaching Writing to Learners with Special Needs (3)
SPED	4475**	Student Teaching/Seminar: K-12 Special Education: General Curriculum (15)

Courses specific to the Adapted Curriculum license:

SPED	3273	Life Skills Instruction (3)
SPED	4274	General Curriculum Access and Modifications (3)
SPED	4278	Systematic Instruction in the Adapted Curriculum (3)
SPED	4316	Transition and Service Delivery (3)
SPED	4476**	Student Teaching/Seminar: K-12 Special Education: Adapted Curriculum (15)

***Enrollment in SPED 4475 or SPED 4476 requires admission to student teaching through the College's Office of Field Experiences*

Elective (6-10 hours)

Academic Advising. Freshmen and sophomores who intend to major in Special Education are classified as Pre-Education students in Special Education. They are assigned an advisor in the College's Office of Teacher Education, Advising, and Licensure (TEAL), who helps them select appropriate General Education and Second Academic Concentration courses and who helps 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 application by March 1st, attained a C or better in EDUC 2100 and SPED 2100, passed all three parts of the Praxis I test, and attained an overall GPA of at least 2.5 in at least 45 semester hours of coursework. Applications are available from and are to

be returned to TEAL for admission to the Teacher Education Program in Special Education that typically occurs at the end of the sophomore year. Students are then assigned a major advisor in special education who helps them plan the remainder of their program of study including selection of one of the two licensure areas. Course selections for each subsequent semester must be approved by the student's advisor in special education. Assignment of the student's major advisor is the responsibility of the undergraduate coordinator of the Department of Special Education and Child Development (SPCD).

Department of Educational Leadership

Chair: Professor Queen; *Professors:* Algozzine, Gretes, Locke, Lyons; *Associate Professors:* Flowers, Lambert, McColl; *Assistant Professors:* Friedman, Hancock, Hartshorne, Howley, Jazzar, Mitchell, Poole, Porfeli, Wang, White

Website: <http://education.uncc.edu/eart/>

Support Offices and Special Resources

The Office of Teacher Education Advising and Licensure (TEAL). (<http://education.uncc.edu/teal>)

Located in COED 119, this office serves all students involved in teacher education programs. The staff, including a director and two full-time academic advisors, 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 Arts and Sciences departments 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 Office of Teacher Education Advising and Licensure 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 Praxis I and Praxis II examinations; requirements and procedures for obtaining licensure in North Carolina (or in other states that have reciprocity agreements with North Carolina), including the state's new licensure requirements for demonstration of advanced technology competencies;

and final audits to ensure completion of all program and licensure requirements.

The Office of Field Experiences (OFE)

(<http://education.uncc.edu/ofe>)

Located in COED 139, this office provides support services for school-based clinical experiences that students complete for courses and during year-long 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 linked to specific courses, designed by the instructors of those courses, and described in course syllabi. These field experiences continue throughout a candidate student's program, progressing from observation and analysis to planning and implementing instruction to assessing learning outcomes with PK-12 students. They culminate in a 15-week, full-time student teaching experience after completion of all other course work.

Special Facilities and Resources. The following special facilities and resources support the work of both faculty and students in teacher education programs:

- The new College of Education Building, opened in December 2004, includes *model classrooms* for reading and language arts; science and mathematics; and social studies.
- On the ground floor of the College of Education Building are *two computer classrooms* and *two open computer labs*.
- The College of Education Building includes a student lounge and an undergraduate student study room.
- The *Teacher Education Learning Community* is a two-year residential program in Cypress Hall for students who wish to become teachers. Community members participate in social activities, community service, professional development activities, and have the opportunity to take some general education classes as a cohort group.
(<http://education.uncc.edu/coe/freshman/FLC%20FAQS.pdf>)
- The College of Education has partnerships with *seven Professional Development Schools* in the region, public schools that work closely with the College to provide excellent clinical experience opportunities.
- The Atkins Library supports teacher education programs through a large children's literature collection on the 3rd floor, curriculum and instructional materials on the 2nd floor (<http://libweb.uncc.edu/cimc>); hotlinks from Jasmine, the online *catalog*, to curricular support materials such as Primary Search in EBSCO host which provides full text for over 50 children's magazines (<http://library.uncc.edu/electronic>).
- *Media Services* in Atkins Library, maintains an extensive collection of audiovisual equipment and provides graphic and television production services to support instruction.
- The *Center for Math, Science, and Technology Education* in COED 222 sponsors a wide variety of

programs and projects that involve preservice and inservice teachers and that are designed to enhance the quality of instruction in mathematics, science, and technology for both pre-college and university students.
(<http://education.uncc.edu/cmste>)

- The *Office of Educational Outreach*, in COED 162, fosters collaborative relationships between schools and UNC Charlotte by developing, supporting, and publicizing activities and projects that involve UNC Charlotte students and faculty in public school systems throughout the University's service region.
(<http://education.uncc.edu/oeo>)

The NC Teaching Fellows Program. Please see the Honors College section of this *Catalog*.

Undergraduate Student Organizations and Awards.

Examples of organizations that are especially relevant to undergraduate students in teacher education programs include:

- The *Student National Education Association (SNEA)*, affiliated with the North Carolina Association of Educators (NCAE) and the National Education Association (NEA)
- The *Student Council for Exceptional Children (SCEC)*, affiliated with the Council for Exceptional Children (CEC)
- The *College Middle Level Association* promotes excellent teaching in the middle grades and support for middle grades teacher candidates.
- The *Omicron Pi Chapter of Kappa Delta Pi*, an international honor society for students in education

Examples of awards and scholarships that recognize the achievements of undergraduate students in teacher education programs include:

- The *Teacher Education Award*, presented annually to two seniors who have demonstrated leadership and scholarship and who plan to teach
- 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
- The *Military Order of the Purple Heart Award*, presented annually by the American Association of Colleges for Education to two juniors majoring in programs in the College of Education who have shown scholarly achievement, teaching ability, and concern for the educational rights of children with disabilities
- 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

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- *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
- *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
- *The Ronald J. Anderson Memorial Scholarship*, presented annually to individuals with strong academic achievement who have overcome significant physical disability

More information about these organizations and awards for undergraduate students in teacher education is available on the web at <http://studentorgs.uncc.edu> and at <http://education.uncc.edu/teal/finaidt.html>, as well as in the Office of Teacher Education Advising and Licensure (TEAL) in COED 119.

THE WILLIAM STATES LEE COLLEGE OF ENGINEERING

Dean: Professor Robert Johnson; Associate Dean: Professor Ronald Smelser; Assistant Dean: Patricia Tolley

The William States Lee College of Engineering has adopted a vision that:

- The College will be **the engineering college of choice** for students, faculty, sponsors, and partners, reflecting the prestige gained by the excellence of our programs, research, graduates, and faculty.
- The College nurtures **collaborative and friendly learning** communities in which all stakeholders (students, faculty, sponsors, and partners) can succeed and are involved in the continuous assessment and improvement processes.
- Student development, faculty development, and resource and community development are guided by the principle that they should **enhance our learning** environment and promote the prestige of our institution.

The Lee College offers baccalaureate degree programs in Engineering and Engineering Technology. On the graduate level, the College offers programs leading to master's degrees in Engineering and Engineering Management; the Ph.D. in Electrical Engineering and Mechanical Engineering; an interdisciplinary Ph.D. in Infrastructure and Environmental Engineering; and, in cooperation with North Carolina State University, a program leading to the Ph.D. degree in Civil Engineering (see the *Graduate Catalog*).

The College is composed of the Departments of Civil Engineering, Electrical and Computer Engineering, Mechanical Engineering and Engineering Science, and Engineering Technology.

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.

Whatever the career objective of the student, a sound engineering educational program ensures their graduates have: (a) an ability to apply knowledge of math, science and engineering; (b) an ability to design and conduct experiments/analyze and interpret data; (c) an ability to design a system, component, or process; (d) an ability to function on multi-disciplinary 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) an ability to evaluate the impact of technology in a global/societal

context; (i) an appreciation for lifelong learning; (j) knowledge of contemporary issues; and (k) an ability to use the techniques, skills, and modern tools for engineering practice. The course of study will involve the humanities, social sciences, physical sciences, mathematics, and engineering sciences. 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 that includes business administration and economics offerings and other courses to strengthen their communication skills.

Engineering students are strongly 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) Exam. Students are encouraged to take this exam 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.

Engineering Technology Program. 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, and engineering operational functions.

Engineering technology programs are characterized by their focus on application and practice and by their approximately 50/50 mix of theory and laboratory experience.

Graduates of the engineering technology program are recruited by most major technological companies in the U.S. They are employed across the technological spectrum but are better suited to areas that deal with application, implementation, production, and construction. Technical sales and customer services fields also account for many placements.

Engineering technology students are strongly 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) Exam. Students are encouraged to take this exam during their senior year. Additional requirements for professional licensure subsequent to graduation include the accumulation of at least eight years of progressive experience and successful completion of the Professional Engineer (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.

ACADEMIC PROGRESSION REQUIREMENTS AND DISCONTINUANCE CONDITIONS FOR:

I. Bachelor's Degree Programs and Advising in the College of Engineering

Students may be admitted to one of the four College of Engineering departments: Civil Engineering (CEGR), Electrical and Computer Engineering (EEGR and CPGR), Mechanical Engineering (MEGR), and Engineering Technology (ET). Students may also be admitted as ENGR (*engineering undecided*), ETGR (*engineering technology undecided*), or FEGR (*freshman engineering*) majors.

Engineering Undecided (ENGR) and *Engineering Technology Undecided* (ETGR) are individualized advising programs for students who qualify for admission to an engineering or engineering technology major but who have not decided which program they desire. Students may change their classification to a specific major once they make a decision. Both ENGR and ETGR students should make such a decision no later than the completion of their freshman year.

Freshman Engineering (FEGR) is an individualized advising program for students who meet the requirements for conditional admission to a baccalaureate engineering degree program in the College of Engineering but who are not admitted directly to one of the programs.

Students are expected to follow the advice and recommendations of their faculty advisors and are expected to know and follow all pre-requisite, co-requisite, and progression requirements of their program. Persistent attempts to circumvent that advice and guidance shall be grounds for discontinuance.

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 discontinuance if they have two consecutive semesters of unsatisfactory progress.

II. Freshman Year Requirements

All new freshman students are initially advised by a central office within the College of Engineering. Students are eligible for transfer to their major department for further advising once they have achieved the following:

1. completion of all non-elective courses in their freshman year curriculum with grades of C or better, and

2. a minimum cumulative grade point average (GPA) of 2.00 for all courses taken.

III. Sophomore Through Senior Year Requirements

In addition to the University requirements for continued enrollment, students must maintain a major cumulative GPA of 2.00 for all courses in the departmental curriculum taught by the College. Failure to meet this requirement for two consecutive semesters will result in suspension from the College of Engineering.

IV. Requirements for Readmission to the College after Discontinuation

An undergraduate student who has been discontinued for failure to satisfy the College requirement for continuation stated above, but who nonetheless meets the conditions for continued enrollment in the University, will be ineligible for readmission to the College until:

1. an appeal is accepted through the College of Engineering, or
2. 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 discontinuation 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 discontinuation 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.

SPECIAL COLLEGE PROGRAMS

MAPS – Maximizing Academic and Professional Success. The College's nationally recognized MAPS program assists students in developing the personal, academic, and professional skills needed for success. The program includes peer mentoring in individual or small group sessions, Supplemental Instruction (SI), tutoring, workshops and study groups. SI and/or tutoring is available for courses such as calculus, chemistry, and physics and for sophomore and junior engineering and engineering technology courses. Assessment results indicate that students who regularly participate in MAPS perform well academically and are much more likely to graduate from the College.

Freshman Learning Community (FLC). The FLC houses a limited number of College of Engineering students on one floor of a residence hall. During the fall semester, FLC students take classes together. Students are assigned a peer mentor, and SI for a variety of freshman courses is provided by the MAPS Program. Other special events such as chemistry study nights, ropes course, community service projects, 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.

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.

To be eligible for the Co-op program, a student must have completed at least 24 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 and 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 Faculty Associate for Student Professional Development or the University Career Center.

Domestic Internships. A number of opportunities for non-credit internships, called 49erships, exist for students at local and regional employers. Internships 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 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 24 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. 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 Faculty Associate for Student Professional Development or the University Career Center.

International Internships. The College's International Exchange program 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 Review. The first step in professional licensure is the FE exam, which students take their senior year. To encourage and prepare students to take and successfully pass this national exam, the College offers a series of review sessions each fall and spring semester. These sessions focus on technical subjects and test-taking strategies.

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 Continuing Education, Extension, and Summer Programs.

Department of Civil Engineering

Chairperson: Professor Young; *Professors Emeritus:* Bayer, Evett, King; *Duke Energy Distinguished Professor:* Inyang; *Professors:* Graham, Janardhanam, Wu; *Associate Professors:* Bowen, Gergely, Hilger, Kane; *Assistant Professors:* Anderson, Boyajian, Daniels, Ogunro, Weggel

The program in Civil Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202, Telephone: (410) 347-7700.

The objectives of the undergraduate program in Civil Engineering are to:

- (a) provide students with the latest social, mathematical, scientific and engineering educational experiences required to access needs, define problems, evaluate alternatives, propose appropriate solutions and implement designs;
- (b) provide students with the social science and management educational experiences required to effectively work in teams, communicate recommendations and manage the implementation of their designs; and
- (c) promote concern for environmental, societal and global ramifications of engineering solutions, the value of the profession and its ethics, the opportunities provided by graduate studies, and the necessity of life-long learning.

These objectives are accomplished through a flexible curriculum and through interactions with other departments and colleges of the University and with the professional community.

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.

The Department 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. Additionally, doctoral studies leading to the Doctor of Philosophy (Ph.D.) degree are available through a cooperative arrangement with North Carolina State University. For information about the master's programs, see the *UNC Charlotte Graduate Catalog*.

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 Engineering influence how each student plans his/her undergraduate program of study. Twenty-one hours of technical 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.

Additionally, students may take nine hours (three "Optional Courses") beyond the BSCE requirements from prescribed menus in each of the areas of Environmental, Geotechnical, Structural, and Transportation Engineering to earn a Department-issued "Area of Concentration." Although currently under development, a fifth area of concentration, in Construction Engineering, is expected to be available by the time this *Catalog* is printed.

Qualified students may apply for early-entry into the graduate program 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.

Early-Entry to Master's Program in Civil Engineering

1. A student may be accepted into the early-entry program at any time after completion of at least 75 semester hours of undergraduate work applicable to an appropriate degree. Admission must be approved by the Department of Civil 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 grade point average and a 3.2 grade point average 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, a student must maintain a 3.0 overall grade point average through completion of the baccalaureate degree in order to remain in the graduate program.
4. 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.

BACHELOR OF SCIENCE IN CIVIL ENGINEERING (B.S.C.E.)

This curriculum became effective Fall 2000. Students who entered the program prior to Fall 2000 should refer to a previous catalog or contact the Department office for their program of study. Since the curriculum changes periodically, students should contact the Department office for the latest information concerning this curriculum.

A major in Civil Engineering leading to the B.S.C.E. degree consists of 128 credit hours. Specific requirements are:

English.....	6
Technical Communications	3
Humanities and Social Science Electives ..	15
Mathematics	15
Physics.....	8
Chemistry	4
Science Elective	3
Engineering	4
Electrical or Mechanical Engineering	3
Engineering Science	6
Departmental Requirements	40
Open Technical Electives	9
Civil Engineering Technical Electives.....	12
Total.....	128

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.

Technical electives allow flexibility for study in specific areas, and each student may design a technical elective program with the advisor's approval in order to achieve an individual goal and follow a desired track. Three "open" technical (TECH) electives may be selected from the areas of engineering, mathematics, science, business and communications. Four Civil Engineering technical (CEGR TECH) electives must be selected from upper-division Civil Engineering courses.

CURRICULUM OUTLINE: B.S.C.E. DEGREE (effective Fall 2004)

Freshman Year

MATH	1241	Calculus I	3
CHEM	1251	Chemistry I	3
CHEM	1251L	Chemistry Lab	1
ENGL	1101	English I	3
ENGR	1201	Introduction to Engineering I	2
LBST	1101, 1102, 1103, 1104 or 1105 – Gen Ed		3
			15

MATH	1242	Calculus II	3
PHYS	2101	Dynamics	3
PHYS	2101L	Physics Lab	1
ENGL	1102	English	3
ENGR	1202	Introduction to Engineering II	2
Social Science		Gen Ed	3
			15

Sophomore Year

MATH	2241	Calculus III	3
PHYS	2102	Electricity	3
PHYS	2102L	Physics Lab	1
CEGR	2101	Drawing	2
CEGR	2102	Engineering Economics	3
MEGR	2141	Statics (Engr. Mech. I)	3
LBST	2101	Gen Ed	3
			18

MATH	2171	Differential Equations	3
CEGR	2104	Surveying & Site Design	3
ENGL	2116	Technical Writing (W)	3
MEGR	2144	Solid Mechanics	3
CEGR	2154	Design Project Lab (O)	2
Science		Elective	3
			17

Junior Year

CEGR	3143	Hydraulics & Hydrology	3
CEGR	3141	Environmental I	3
CEGR	3278	Geotechnical I	3
CEGR	3122	Structures I	3
CEGR	3155	Environmental Laboratory (W)	1
CEGR	3258	Geotechnical Laboratory (W)	1
LBST	2102	Gen Ed	3
			17

CEGR	3161	Transportation I	3
CEGR	3153	Transportation Laboratory (W)	1
CEGR	3255	Structures & Materials Laboratory (W)	1
CEGR		Elective	3
CEGR		Elective	3
STAT	3128	Probability & Statistics for Engineers	3
Engineering		Elective: CEGR 2161-Circuits or MEGR 3121-Dynamics or MEGR 3111-Thermodyn	3
*Optional		Course A	(3)

Senior Year

CEGR	3201	Systems and Design I	3
CEGR	3221	Structural Steel Design I or 3225 Reinforced Concrete Design I	3
CEGR	3282	Professional Development	1
CEGR		Elective	3
TECH		Elective	3
LBST	2211, 2212, 2213, 2214 or 2215 – Gen Ed		3
*Optional		Course B	(3)
			16

CEGR	3202	Systems and Design II	4
CEGR		Elective	3
TECH		Elective	3
TECH		Elective	3
*Optional		Course C	(3)
			13

Total Required Hours 128

Note: (W) indicates a writing intensive course
(O) indicates an oral communication course

*Contact the Department office for more information about the optional courses and their use for an undergraduate concentration or for the early-entry Master's program.

Department of Electrical and Computer Engineering

Chairperson: Professor Casperson; *Professors:* Bobbio, Coleman, Daneshvar, Fiddy, Kakad, Lukic, Makki, Tranjan, Tsu; *Professor Emeritus:* Greene; *Associate Professors:* Binkley, Conrad, Emmert, Hasan, Howitt, Miri, Stokes, Weldon; *Associate Professor Emeritus:* Smith; *Assistant Professors:* Nasipuri, Mukherjee, Ravindran, Xie; *Faculty Associate:* Hudak, Sheppard.

The Electrical and Computer Engineering Department provides instruction and research in areas of electrical and computer engineering such as electronics, microelectronics, optoelectronics, power systems, control theory, digital systems, communications, and VLSI design.

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 curricula. Emphasis is placed on the utilization of computers throughout the curricula.

Graduate studies in electronics, microelectronics, optoelectronics, computer engineering, VLSI design and testing, signal processing, communications, and power and control systems are offered by the Department at the master's level. The Department also offers a doctoral degree with emphasis in microelectronics, optoelectronics, or computer engineering.

Early-entry to the Master of Science Program in Electrical Engineering

1. A student may be accepted into the early-entry program at any time after completion of 75 semester 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 grade point average and a 3.2 grade point average 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 grade point average 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.

The program in Electrical Engineering and the program in Computer Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202 - Telephone (410) 347-7700.

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (B.S.E.E.)

The curricula described are subject to change. Please consult with the Chair or the Undergraduate Coordinator for the latest versions.

A major in Electrical Engineering leading to the B.S.E.E. degree consists of a total of 127 credit hours.

The **Program Educational Objectives** are as follows:

- To provide our students the opportunity and the environment to acquire the educational background necessary to pursue professional careers in Electrical Engineering and/or to continue their education toward an advanced degree in the field.
- To provide graduates who have a comprehensive background in mathematics, physical and social sciences, liberal arts, and human values, with in-depth knowledge of the fundamentals of engineering science and Electrical Engineering that perpetuates life-long learning.

- To provide graduates with the tools to pursue successful and long careers in the profession that places ethical conduct as paramount.
- To prepare graduates who can effectively communicate their thoughts and ideas to their surroundings along with the understanding of the impact of electrical engineering on global, societal, and environmental issues.
- To provide graduates who have state-of-the-art computer skills suitable for a modern career in electrical engineering, where computer utilization is an essential tool.

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.

The degree requirements are:

English.....	6
Liberal Studies.....	18
Mathematics	15
Physics.....	10
Chemistry	4
Science Elective.....	3
Engineering.....	5
Mechanical Engineering.....	3
Departmental Requirements	51
Technical Electives	9
Economics	3
	127

Note: one course in foreign language may be considered as HUM/SS.

The *social science and humanities electives* must include some courses at an advanced level and 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.

The *science elective* must be chosen from the physical, life, or earth sciences and must complement the student's overall educational plan.

The *technical electives* are chosen by students in consultation with their academic advisor. Students can use these electives to: (1) obtain some breadth within electrical engineering by choosing additional advanced courses; (2) obtain significant depth within a particular area of electrical or computer engineering; and (3) prepare for graduate work in electrical or computer engineering. The technical electives must contain at least nine hours of coursework dealing with engineering science, analysis, synthesis, or design. See Department guidelines for selection of these courses.

All junior-level core courses must be satisfactorily completed prior to enrolling in the senior project courses.

CURRICULUM PLAN: B.S.E.E. DEGREE

Freshman Year

ENGR 1201 - Intro To Engineering Practices & Principles I .	2
CHEM 1251 - Principles of Chemistry.....	3
CHEM 1251L - Chemistry Lab	1

MATH 1241 - Calculus I	3
ENGL 1101 - English Composition	3
LBST 1101, 1102, 1103, 1104 or 1105	3
	15

ENGR 1202 - Intro To Engineering Practices & Principles II ..	2
MATH 1242 - Calculus II	3
PHYS 2101 – Physics for Science & Engineering I	3
PHYS 2101L - Physics Lab I	1
ENGL 1102 - Composition & Literature	3
LBST 2101 – Western Cultural & Historical Awareness ..	3
	15

Sophomore Year

ECGR 2103 - Computer Utilization in C++	3
ECGR 2111 - Network Theory I	3
ECGR 2155 - Lab: Logic & Networks	1
ECGR 2181 - System Design I	3
MATH 2171 - Differential Equations	3
PHYS 2102 - Physics for Science & Engineering II	3
	16

ECGR 2112 - Network Theory II	3
ECGR 2156 - Lab: Instrumentation and Networks	1
ECGR 2252 - Electrical Engineering Design I	2
MATH 2241 - Calculus III	3
PHYS 3141 - Introduction to Modern Physics	3
LBST 2102 - Global & Intercultural Connections	3
	15

Junior Year

ECGR 3111 - Signals and Systems	3
ECGR 3121 - Introduction to Electromagnetic Fields	3
ECGR 3131 - Fund of Electronics & Semiconductors	3
ECGR 3155 - Lab: Systems and Electronics	1
ECGR 3157 - Electrical Engineering Design II	2
ENGR 3295 - Professional Development	1
HUM/SS - Humanities/Social Sciences Elective	3
	16

ECGR 3122 - Electromagnetic Waves	3
ECGR 3132 - Electronics	3
ECGR 3133 - Solid State Microelectronics I	3
ECGR 3142 - Electromagnetic Devices <u>or</u>	
ECGR 3156 - Lab: Electromagnetic & Electronic Devices	1
STAT 3128 - Probability and Statistics for Engineers	3
LBST 2211, 2212, 2213, 2214 or 2215	3
	16

Senior Year

ECGR 3253 - Senior Design I	2
ECGR 4123 – Analog & Digital Communication	3
ECGR Senior Elective	3
ECON 2101 - Economics	3
Technical Elective	3
Science Elective	3
	17

ECGR 3159 - Elec. Engineering Professional Practice	2
ECGR 3254 - Senior Design II	3
MEGR 3111 - Thermodynamics	3
HUM/SS - Humanities/Social Sciences Elective	3
Technical Elective	3
Technical Elective	3
	17

Total Hours: 127

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING (B.S.Cp.E.)

The curriculum in Computer Engineering leading to the B.S.Cp.E. degree consists of 125 semester credit hours. The curriculum was developed to meet the following **Program Educational Objectives**:

- Provide our students a solid foundation in the field of computer engineering within an environment that fosters hands-on design and synthesis experience.
- Prepare our students for leadership positions by providing a balanced educational experience with emphasis on communication skills, teamwork, and professional practice, including values and ethics.
- Provide sufficient curriculum flexibility to allow every student to synthesize a program of study that is specific to the students' interests within the diverse field of computer engineering.
- Provide our students sufficient breadth of knowledge to understand the broad relationships of the various areas within engineering, and sufficient depth as a concentration within one of those areas.

The following curriculum became effective for all students entering the program in the summer of 2002 and thereafter. Students who entered the program prior to the summer of 2002 should consult earlier versions of the *Catalog* or contact the ECE department.

The degree requirements are:

University Goals. 48 hours meeting and surpassing the University General Education requirements, including 12 hours of communications, 9 hours of math, and 12 hours of science.

Core 1. Advanced Problem Solving: Nine hours of advanced problem solving courses.

Core 2. Computer Engineering: 39 hours of computer engineering including introduction to engineering, programming and data structures, network theory, electronics, logic design, data communications, and computer organization and architecture.

Breadth. 12 hours of required courses from four different concentration areas.

Depth. Six hours of electives, where the student chooses two courses from one of the chosen depth areas. Combined with the Breadth requirement, this results in a minimum of nine hours in a concentration area.

Professional Development and Practice: One hour of professional development and two hours of professional practice.

Senior Design Capstone. Five hours of senior design project.

Restricted Electives. Three hours of engineering, information technology computer science, math, physics, chemistry, or biology at the 2xxx level or above.

Total: 125 semester hours

CURRICULUM OUTLINE: BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

University Goals - 48 hours

I. Communication: ENGL 1101, ENGL 1102, ECGR 3254, and ENGL 2116 –or– any 3-hour 2xxx level (or above) course with a writing intensive (W) designation..... 12

II. Problem Solving: MATH 1241, 1242; STAT 2122 9

III. Social Science: ECON 2101 3

IV. Science: PHYS 2101/L, PHYS 2102/L, CHEM 1251/L .. 12

V. Liberal Studies/Arts & Society: Choose one course from {LBST 1101, 1102, 1103, 1104 or 1105}. 3

VI. Liberal Studies/Western: LBST 2101 3

VII. Liberal Studies/Global: LBST 2102 3

VIII. Liberal Studies/Ethical & Cultural issues: Choose one course from {LBST 2211, 2212, 2213, 2214, or 2215} . 3

Core 1. Advanced Problem Solving – 9 hours
MATH 1165, MATH 2171 and one course from: {MATH 2164, OPRS 3111, OPRS 3113, or PHYS 3141} 9

Core 2. Computer Engineering – 39 hours
Core 1 & 2 Subtotal 48

Breadth: Required courses from four different concentration areas. 12

Depth: Two ECGR courses at 3XXX or above, chosen from one of the depth areas..... 6

Senior Design Capstone: 5

Professional Development: 1

Professional Practice: 2

Restricted Electives: One 2XXX or above (COE or MATH/STAT/PHYS/CHEM/BIOL/ITCS) course 3

Total Hours: 125

Breadth Requirement – required courses from four different concentration areas:

- (1) Design & Test: ECGR 4146 Intro to VHDL
- (2) Communications: ECGR 4124 Digital Signal Processing
- (3) Device Electronic & Technology: ECGR 3132 Electronics II
- (4) Computer Architecture/Software Systems: ECGR 4101 Embedded Systems

Depth Elective Requirement - choose two ECGR courses from one of four areas:

1. Design & Test

ECGR 3182	Digital Electronics
ECGR 4132	Analog Integrated Circuits Design
ECGR 4182	Digital System Testing
ECGR 4433	VLSI Systems Design
ITCS 3183	Hardware Systems Design
ITCS 4181	Microcomputer Interfacing

2. Communications

ECGR 3112	Systems Analysis II
ECGR 4125	Foundation of Optical Engineering
ECGR 4132	Analog & Digital Communication
ECGR 4187	Data Communications
ITCS 3134	Digital Image Processing
ITCS 3166	Distributed Computer Info Systems
ITCS 4165	Coding and Information Theory

3. Device Electronics & Technology

ECGR 3133	Solid State Microelectronics I
ECGR 4125	Foundation of Optical Engineering
ECGR 4131	Linear Integrated Microelectronics
ECGR 4134	Solid State Microelectronics II
ECGR 4137	Device Electronics for ICs
ECGR 4138	Electronic Thin Film Devices
ECGR 4140	Intro to VLSI Processing
ECGR 4165	Laser Electronics

4. Computer Architecture/Software Systems

ECGR 4182	Digital System Testing
ITCS 2214	Data Structures
ITCS 3145	Intro to Parallel Programming
ITCS 3160	Data Base Design
ITCS 3183	Hardware System Design
ITCS 4141	Computer Organization & Architecture
ITCS 4181	Microcomputer Interfacing
ITCS 4183	Computer Arithmetic

CURRICULUM PLAN: B.S.Cp.E. DEGREE

Freshman Year

CHEM 1251 - Principles of Chemistry.....	3
CHEM 1251L - Principles of Chemistry Lab	1
ENGL 1101 - Composition.....	3
ENGR 1201 - Intro to Engineering I	2
ITCS 1214 - Introduction to Computer Science I.....	3
MATH 1241 - Calculus I	3
	15

ENGL 1102 - Writing in the Academic Community.....	3
ENGR 1202 - Intro to Engineering II	2
ITCS 1215 - Introduction to Computer Science II.....	3
MATH 1242 - Calculus II.....	3
PHYS 2101 - Physics for Science/Engineering I.....	3
PHYS 2101L - Physics for Science/Engineering I Lab	1
	15

Sophomore Year

ECGR 2111 - Network Theory I.....	3
ECGR 2181 - Logic System Design I.....	3
ECGR 2155 - ECE Lab	1
MATH 2171 - Differential Equations	3
LBST 1101, 1102, 1103, 1104 or 1105	3
PHYS 2102 - Physics for Science/Engineering II	3
PHYS 2102L - Physics for Science/Engineering II Lab....	1
	17

ECGR 2112 - Network Theory II	3

ECGR 2156 - ECE Lab.....	1
ECGR 3181 – Logic System Design II.....	3
ECON 2101- Principles of Economics - Macro.....	3
MATH 1165 - Intro to Discrete Structures.....	3
STAT 2122 - Probability and Statistics	3
	16

Junior Year

ECGR 3111 - Signals and Systems.....	3
ECGR 3131 - Fundamentals of Electronics/Semiconductors ..	3
ECGR 3155 - Systems & Electronics Lab	1
ENGR 3295 - Professional Development.....	1
ITCS 3182 - Computer Organization/Architecture.....	3
LBST 2101 - Western Cultural & Historical Awareness.....	3
Breadth Elective #1.....	3
	17

ECGR 2255 - Digital Design Lab	2
ECGR 3123 - Data Communication & Network	3
LBST 2102 - Global & Intercultural Connections	3
Advanced Problem Solving Selection	3
Breadth Elective #2.....	3
Restrictive Elective.....	3
	17

Senior Year

ECGR 3253 - Senior Project I	2
ENGL 2116 - Technical Writing –or– any 3-hour, 2xxx level (or above) course with a Writing Intensive (W) designation.....	3
LBST 221X.....	3
Breadth Elective #3.....	3
Depth Elective #1	3
	14

ECGR 3254 - Senior Project II	3
ECGR 3159 - Professional Practice.....	2
Breadth Elective #4.....	3
Depth Elective #2	3
Restrictive Elective.....	3
	14

Total Hours 125

Students are strongly encouraged to review the computer engineering website at www.ece.uncc.edu/cmpgr. It contains a wealth of information, including a complete student handbook and a facility for easily browsing required course prerequisite information.

Department of Engineering Technology

Chairperson: Professor Brizendine; *Professors:* Byars, Sherlock; *Associate Professors:* Ahmad, Barry, Braun, Carter, James, Liou, Orozco, Priebe, Wang; *Assistant Professors:* Gehrig, Kimble, Kuyath, Murphy, Ramers, Sharer, Watkins; *Visiting Assistant Professor:* Owen; *Professors Emeritus:* Liu, Mobley.

Engineering and technical education have undergone considerable change in the last 30 years. The complexities of space exploration, nuclear power, communications systems, environmental control, information processing, transportation systems, fire protection, 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 Engineering Technology Department is committed to producing competent graduates that satisfy the needs of employers in North Carolina and throughout the United States.

UNC Charlotte offers four curricula leading to a Bachelor of Science in Engineering Technology (BSET) degree: **Civil Engineering Technology** (with emphases in General Civil Engineering Technology or Construction Engineering Technology); **Electrical Engineering Technology** (with emphases in Electronics Engineering Technology or Computer Engineering Technology); **Fire Safety Engineering Technology**; and **Mechanical Engineering Technology**.

Students may enroll in our programs in several ways: 1) as freshmen; 2) as transfers without an AAS in engineering technology; or 3) as upper division transfers after completing a two-year Associate of Applied Science (AAS) degree in a relevant engineering technology or fire protection curriculum at a community or technical college. Incoming students with an AAS degree generally receive Junior class standing with 64 semester credit hours applied toward the 124-128 credits required for the Bachelor of Science in Engineering Technology degree.

UNC Charlotte is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS, 1866 Southern Lane, Decatur, Georgia 30033-4097; telephone number 404-679-4501) to award baccalaureate, master's, intermediate, and doctoral degrees.

In addition, the Civil, Electrical, and Mechanical Engineering Technology programs of study in Engineering Technology are accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202; telephone number 410-347-7700).

Distance Education Options. In addition to the on-campus programs, the upper division of the BSET programs in **Electrical Engineering Technology** and **Fire Safety Engineering Technology** are offered over the Internet to part-time students. This allows students who already hold an 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 an initial orientation and 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 a maximum of two courses per semester.

ENGINEERING TECHNOLOGY PROGRAM EDUCATION 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 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, Civil, Electrical, Fire Safety, and Mechanical Engineering Technology program alumni 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. Contributing within team environments, demonstrating ethical, respectful and professional behavior in all associations.
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 Bachelor of Science in Engineering Technology (BSET) degree from UNC Charlotte will be able to:

1. Utilize appropriate tools to acquire data and analyze problems. (TAC 2a, 2b, 2c – see below)
2. Demonstrate effective skills in the development and presentation of team projects. (TAC 2e, 2g, 2k)
3. Exhibit knowledge and skills consistent with the expectations of a practicing engineering technologist. (TAC 2h, 2j, 2k)
4. Generate creative and realistic solutions to defined problems and projects. (TAC 2a, 2d, 2f)
5. Recognize the value of diversity, and identify ethical and societal issues in business and technical tasks. (TAC 2i, 2j)
6. Solve problems and design components, systems, or processes appropriate to the discipline. (TAC 2a, 2d, & Program Criteria) Each program defines

the specific details of this outcome.

The Engineering Technology programs identify, measure, and improve student competencies through assessment and continuous improvement of program outcomes, which are mapped to the TAC of ABET Criterion 2 (a through k) criteria listed below:

TAC of ABET Criterion 2 a through k Skills

a: Graduates are expected to demonstrate an appropriate mastery of the knowledge, techniques, skills, and modern tools for their disciplines.
b: Graduates are expected to be able to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology.
c: Graduates will conduct, analyze, and interpret experiments and apply experimental results to improve processes.
d: Graduates are expected to be able to apply creativity in the design of systems, components, or processes appropriate to program objectives
e: Graduates are expected to be able to function effectively on teams.
f: Graduates are expected to be able to identify, analyze, and solve technical problems.
g: Graduates are expected to be able to communicate effectively.
h: Graduates are expected to be able to recognize the need for and possess the ability to pursue lifelong learning.
i: Graduates are expected to be able to understand professional, ethical, and social responsibilities.
j: Graduates are expected to be able to recognize contemporary professional, societal, and global issues and are aware of and respect diversity.
k: Graduates are expected to have a commitment to quality, timeliness, and continuous improvement.

BACHELOR OF SCIENCE IN ENGINEERING TECHNOLOGY (BSET)

Admission Requirements to Department of Engineering Technology programs. Students for this degree may enter 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, Environmental,

- Fire Protection, Fire Science, Optical, Electronics, Industrial, Instrumentation, Manufacturing, Mechanical, Robotics, Surveying or similar title with curriculum acceptable to the Department. A minimum grade point average 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 semester credit hours toward the Bachelor of Science in Engineering Technology degree program only. These hours may not be valid toward other degree program in the University.

Residence Requirements. A student must earn the last 30 semester hours of credit toward the BSET degree and the last 12 semester hours of work in the major at this University 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 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 their freshman year, 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 participation 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 one semester 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.

Course Requirements. Course requirements correspond to the mode of admission for each student as outlined hereafter.

1. Entering Freshmen: Students admitted as freshmen will 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 AAS degree: Transfer students with an acceptable Associate of Applied Science (AAS) degree as defined previously under admission requirements shall 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.

Prerequisites for admission to the Civil, Electrical, and Mechanical Engineering Technology Programs. 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 semester hours)
- Algebra and Trigonometry (6 semester hours)
- Differential and Integral Calculus (3 semester hours)
- General Physics (with lab) (4 semester hours)
- Additional Physics or Chemistry (with lab) or Geology (for CIET) (4 semester hours)
- Humanities or Social Sciences (3 semester hours)
- Technical Courses in Major Area as listed under Discipline Specific Prerequisites below (up to 38 semester hours).

Total maximum transfer credit from two-year colleges is 64 semester hours.

Discipline Specific Prerequisites:

Civil

Computer Aided Drafting
Surveying
Statics
Strength of Materials

Electrical

Electrical Drafting
Computer Programming (high level language: e.g., BASIC, FORTRAN, PASCAL, C, C++)
D.C. Circuits
A.C. Circuits
Digital Circuits
Semiconductor Circuits
Communications, Electronics, Control Systems, or Microcomputers

Mechanical

Drafting/Computer Aided Drafting
Machine Processes
Statics
Metallurgy or Engineering Materials
Kinematics or Mechanisms

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Basic Electrical Circuits or Physics II (Electricity)
Computer Programming (using a higher level language
such as Visual Basic, FORTRAN, or C++)

Prerequisites for admission to the Fire Safety Engineering Technology Program. 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 semester hours)
- Algebra (3 semester hours)
- Two science courses with lab (8 semester hours)
- Humanities and/or Social Sciences (6-9 semester hours)
- Computer Literacy Course
- Technical Courses in Major Area as listed below (32-38 semester hours)
 - o Introduction to Fire Protection
 - o Fire Prevention and Public Education
 - o Fire Detection and Fire Investigation
 - o Building Construction
 - o Inspections and Codes
 - o Sprinklers and Automatic Alarms
 - o Fire Protection Law
 - o Fire Fighting Strategies
 - o Chemistry of Hazardous Materials
 - o Hydraulics and Water Distribution
 - o Managing Fire Services

CURRICULUM OUTLINES

CIVIL ENGINEERING TECHNOLOGY PROGRAM

Recommended Freshman & Sophomore Year Curriculum to be completed at a Community or Technical College:

Freshman Year

ENGL 1101	English Composition	3
ETGR 1201	Introduction to Engineering Technology ..	2
ETCE 1121	Construction Methods	3
ETGR 1100	Eng Tech Computer Applications	3
ETGR 1103	Technical Drawing I	2
MATH 1100	College Algebra and Probability	3
		16

ENGL 1102	Writing in the Academic Community	3
ETCE 1211	Surveying I	4
ETCE 1222	Construction Materials	3
ETGR 1104	Technical Drawing II	2
MATH 1103	Precalculus Math for Science & Engr	3
		15

Sophomore Year

Science Elective CHEM 1111 or CHEM 1251 or GEOL 1200			3
ETCE 2112	Surveying II		4
ETGR 2101	Applied Mechanics I		3
MATH 1121	Calculus (ET)		3
PHYS 1101	Introductory Physics I		3
PHYS 1101L	Introductory Physics I Laboratory		1
			17

ETCE 2410	Introduction to Environmental Tech.	3
ETGR 2102	Applied Mechanics II	3
PHYS 1102	Introductory Physics II	3
PHYS 1102L	Introductory Physics II Laboratory	1
STAT 1220	Elements of Statistics I	3
SS Elective	Directed Social Science General Education Elective	3
		16

CIVIL ENGINEERING TECHNOLOGY PROGRAM General Civil Engineering Technology Emphasis

Junior Year

ETGR 3071	Engineering Tech. Prof. Seminar	1
ETCE 3111	Structural Analysis I	3
ETCE 3121	Foundations and Earthwork	3
ETCE 3151	Soil Testing Laboratory	1
ETGR 3222	Engineering Economics	3
Directed Elective	.....	3
		14

ETCE 3112	Structural Analysis II	3
ETCE 3132	Hydraulics	3
ETGR 3171	Engineering Analysis I	3
ETCE 3150	Hydraulics & Materials Lab	1
Directed Electives	.....	6
		13

Senior Year

ETCE 3212	Structural Steel Design	3
Major Elective Laboratory	.....	1
ETCE 3262	Intro to Environmental Engineering	3
ETCE 3243	Project Management Technology	3
Science Elective with Laboratory: CHEM 1251 or 1111 or GEOL 1200		4
Major Elective	.....	3
		17

ETCE 3642	Senior Design Project	2
ETCE 3211	Reinforced Concrete Design	3
ETCE 3241	Highway Design & Construction	3
Major Electives	.....	6
Directed Elective	.....	3
		17

CIVIL ENGINEERING TECHNOLOGY PROGRAM Construction Engineering Technology Emphasis

Junior Year

ETGR 3071	Engineering Tech. Prof. Seminar	1
ETCE 3111	Structural Analysis I	3
ETCE 3121	Foundations & Earthwork	3
ETCE 3151	Soil Testing Lab	1
ETGR 3222	Engineering Economics	3
Directed Elective	.....	3
		14

ETCE 3112	Structural Analysis II	3
ETCE 3132	Hydraulics	3
ETCE 3150	Hydraulics & Materials Lab	1
ETGR 3171	Engineering Analysis I	3
Directed Electives	.....	6
		16

Senior Year

ETCE 3211	Structural Steel Design.....	3
ETCE 3243	Project Management Technology.....	3
ETCE 3281	Cost Estimating I.....	3
Science Elective with Laboratory: CHEM 1251 or 1111 or GEOL 1200 (a).....		4
Major Elective	Laboratory.....	1
Major Elective	**.....	3
		17
ETCE 3211	Reinforced Concrete Design.....	3
ETCE 3241	Highway Design and Construction.....	3
ETCE 3293	Building Systems.....	3
ETCE 3642	Senior Design Project.....	2
Major Elective	**.....	3
Directed Elective	*.....	3
		17

ELECTRICAL ENGINEERING TECH. PROGRAM

Freshman Year

ENGL 1101	English Composition.....	3
MATH 1100	College Algebra & Probability.....	3
ETGR 1100	Engineering Technology Computer Applications.....	3
ETEE 1123	DC Circuit Analysis.....	3
ETEE 1101	Electronics Lab I.....	1
ETGR 1201	Introduction to Engineering Technology..	2
		15
ENGL 1102	Writing in the Academic Community.....	3
MATH 1103	Precalculus.....	3
ETEE 1213	Digital Circuits I.....	3
ETEE 1223	AC Circuit Analysis.....	3
ETEE 1201	Electronics Lab II.....	3
SS Elective	Social Science General Educ Elective.....	3
		16

Sophomore Year

STAT 1220	Elements of Statistics I.....	3
PHYS 1101	Physics I.....	3
PHYS 1101L	Physics I Lab.....	1
ETEE 2122	Electronic Drafting and Design.....	2
ETEE 2113	Electronic Devices.....	3
ETEE 2143	Intro. to Electrical Power Systems (Electronics Emphasis) or ETEE 2133 Digital Circuits II (Computer Emphasis).....	3
ETEE 2101	Electronics Lab III.....	1
		16
MATH 1121	Calculus (ET).....	3
PHYS 1102	Physics II.....	3
PHYS 1102L	Physics II Laboratory.....	1
ETEE 2213	Intro. to Microprocessors.....	3
ETGR 2122	Technical Programming.....	3
ETEE 2243	Intro. to Control Systems (Electrical Emphasis) or ETEE 2233 Intro to Computer Networks (Computer Emphasis.).....	3
ETEE 2201	Electronics Lab IV.....	1
		17

ELECTRICAL ENGINEERING TECH. PROGRAM
Computer Engineering Technology Emphasis

Junior Year

ETGR 3071	Engineering Tech. Prof. Seminar.....	1
ETEE 3133	Linear Networks I.....	3
ETEE 3153	ETEE Laboratory V (W).....	1
ETGR 3171	Engineering Analysis I.....	3
ETEE 3183	Digital Logic Design.....	3
Directed Elective	.....	3
		14
CHEM 1251	Principles of Chemistry***.....	3
ETEE 3124	Linear Networks II.....	4
ETEE 3156	ETEE Laboratory VI (W).....	1
ETEE 3285	Assembly Language Programming.....	3
Directed Elective	*.....	3
		14

Senior Year

ETEE 3211	Active Networks I.....	3
ETEE 3255	ETEE Laboratory VIIC (W).....	1
ETEE 3281	Computer Design.....	3
Major Elective	**.....	3
Directed Electives	*.....	6
		16
ETEE 3212	Active Networks II.....	3
ETEE 3275	Integrated Circuit Applications.....	3
ETEE 3286	Microcomputer Applications.....	3
ETEE 3641	Senior Design Project (W, O).....	1
Major Elective	**.....	3
Directed Elective	*.....	3
		16

ELECTRICAL ENGINEERING TECH. PROGRAM
Electronics Engineering Technology Emphasis

Junior Year

ETGR 3071	Engineering Tech. Prof. Seminar.....	1
ETEE 3133	Linear Networks I.....	3
ETEE 3153	ETEE Laboratory V(W).....	1
ETGR 3171	Engineering Analysis I.....	3
ETEE 3183	Digital Logic Design.....	3
Directed Elective	.....	3
		14
CHEM 1251	Principles of Chemistry***.....	3
ETEE 3124	Linear Networks II.....	4
ETEE 3156	ETEE Laboratory VI (W).....	1
ETEE 3285	Assembly Language Programming.....	3
Directed Elective	*.....	3
		14

Senior Year

ETEE 3211	Active Networks I.....	3
ETEE 3213	Industrial Electronics.....	1
ETEE 3257	ETEE Laboratory VIIIE (W).....	3
Major Elective	**.....	3
Directed Electives	*.....	6
		16
ETEE 3212	Active Networks II.....	3
ETEE 3214	Operational Amplifiers.....	3

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ETEE 3222	Automatic Controls	3
ETEE 3641	Senior Design Project (W,O).....	1
Major Elective**		3
Directed Elective*	.....	3
		<u>16</u>

FIRE SAFETY ENGINEERING TECH. PROGRAM

Freshman Year

ENGL 1101	English Composition	3
ETGR 1201	Introduction to Engineering Technology..	2
ETFS 1120	Fundamentals of Fire Protection	3
PHYS 1101	Introductory Physics I	3
PHYS 1101L	Introductory Physics I Lab	1
ETGR 1100	Engineering Tech. Computer Applic.....	3
		<u>15</u>

ENGL 1102	Writing in the Academic Community	3
ETFS 1252	Fire Protection Law	3
ETFS 1232	Fire Prot. Hydraulics & Water Supply	3
MATH 1101	College Algebra and Probability	3
PHYS 1102	Introductory Physics II	3
PHYS 1102L	Introductory Physics II Lab.....	1
		<u>16</u>

Sophomore Year

ETFS 2124	Fundamentals of Fire Prevention	3
ETFS 2132	Building Construction for Fire Protection	3
CHEM 1111	Chemistry in Today's Society	3
POLS 1110	Introduction to American Politics	3
STAT 1220	Elements of Statistics I	3
Directed Elective.....	.....	3
		<u>18</u>

ETFS 2126	Fire Investigation	3
ETFS 2230	Hazardous Materials	3
ETFS 2264	Fire Behavior and Combustion	3
ETFS 2264L	Fire Behavior and Combustion Lab	1
ETGR 1103	Technical Drawing I	2
Directed Elective for W Goal .....	.....	3
		<u>15</u>

Junior Year

ETFS 3103	Principles of Fire Behavior	3
ETFS 3113	Building Fire Safety	3
ETFS 3123	Industrial Hazards & Electricity.....	3
ETGR 3222	Engineering Economics	3
ETFS 3611	Professional Leadership Seminar.....	1
Directed Elective*	.....	3
		<u>16</u>

ETFS 3124	Risk Management for Emergency Services.....	3
ETFS 3144	Active Fire Protection	3
POLS 3119	State Politics.....	3
PSYC 2171	Introduction to Industrial/Organizational Psychology.....	3
Directed Elective*	.....	3
		<u>15</u>

Senior Year

ETFS 3183	Fire Safety Engineering Problem	

	Analysis	3
ETFS 3233	Applied Fire Engineering Design and Analysis.....	3
POLS 3121	Urban Politics	3
PSYC 3174	Organizational Psychology	3
Directed Elective*	.....	3
		<u>15</u>

ETFS 4123	Command & Control of Major Disasters...	3
ETFS 4243	Research Investigation.....	3
ETFS 4323	Advanced Fire Service Administration.....	3
POLS 3126	Administrative Behavior	3
Directed Elective*	.....	3
		<u>15</u>

MECHANICAL ENGINEERING TECH. PROGRAM

Freshman Year

ENGL 1101	English Composition	3
MATH 1100	College Algebra	3
PHYS 1101	Introductory Physics I	3
PHYS 1101L	Introductory Physics I Lab	1
ETGR 1103	Technical Drawing I	2
ETGR 1100	Engineering Tech. Computer Appl.....	3
ETGR 1201	Introduction to Engineering Tech.	2
		<u>17</u>

ENGL 1102	Writing in the Academic Community	3
MATH 1103	Precalculus Math for Science & Engr.....	3
PHYS 1102	Introductory Physics II	3
PHYS 1102L	Introductory Physics II Lab	1
ETME 1101	Manufacturing Processes	3
ETGR 1104	Technical Drawing II	2
		<u>15</u>

Sophomore Year

MATH 1121	Calculus (ET)	3
ETGR 2101	Applied Mechanics I	3
ETGR 2122	Technical Programming	3
ETME 2202	Mechanical Drawing	2
ETME 2101	Applied Materials	3
SS Elective	Social Science Gen. Education Elective....	3
		<u>17</u>

STAT 1220	Elements of Statistics I	3
ETGR 2106	Electrical Circuits	3
ETME 2102	Mechanisms	3
ETME 2156	Machine Shop Practices	2
ETME 2156L	Machine Shop Practices Lab	1
LBST 2101	Western Culture & History	3
		<u>15</u>

Junior Year

ETGR 3071	Engineering Tech. Prof. Seminar.....	1
ETME 3123	Strength of Materials	3
ETME 3133	Fluid Mechanics	3
ETME 3152	Stress Analysis Laboratory	1
ETGR 3171	Engineering Analysis I.....	3
Directed Elective*	.....	3
		<u>14</u>

CHEM 1251	Principles of Chemistry ***	3

ETME 3113	Dynamics.....	3
ETME 3143	Thermodynamics	3
ETME 3151	Fluid Mechanics Laboratory.....	1
ETGR 3222	Engineering Economics	3
Directed Elective	.....	3
		16

Senior Year

ETME 3213	Machine Design I.....	3
ETME 3232	Senior Design Project I.....	2
ETME 3252	Thermodynamics & Heat Transfer Laboratory.....	1
ETGR 3272	Applied Numerical Methods.....	2
ETME 3244	Applied Heat Transfer	3
Major Elective	.....	3
		15

ETME 3242	Senior Design Project II	2
ETME 3251	Instrumentation Lab.....	1
ETME 3163	Instrumentation & Controls	3
Major Electives **	.....	6
Directed Elective *	.....	3
		15

Notes regarding Curriculum Outlines:

*Directed electives may be major field courses or general education courses. They are chosen jointly by student and advisor to ensure that all graduation requirements are met.

**Major elective courses must be upper-division courses (3000 level) offered by the William States Lee College of Engineering or courses related to the student's field of specialization and approved by the Department as major electives for the respective program.

***Transfer students with an AAS may have completed differing science courses at the community college. Generally, AAS transfer students entering the Mechanical or Electrical ET programs will take Chemistry in the junior year at UNC Charlotte; however, the following chart will provide additional guidance for fulfilling the science requirement at UNC Charlotte:

Mechanical & Electrical ET Transfer Students with AAS Degree who have previously taken:	Shall Take at UNC Charlotte:
2 semesters of physics and no chemistry	Chemistry 1251
1 semester of physics and 1 semester of chemistry	Physics 1102 with lab
2 semesters of physics and 1 semester of chemistry	Geology 1200, Biology 1110, Physics 1130, or Chemistry 1252

Department of Mechanical Engineering and Engineering Science

Chairperson: Professor Raja; *Bonnie E. Cone Distinguished Professor in Teaching:* Mohanty; *Norvin Kennedy Dickerson Jr. Distinguished Professor:* Hocken; *SPX Corporation Distinguished Professor:* Patterson; *Professors:* Hari, Johnson, Scott Smith, Stuart Smith, Wilhelm; *Associate Professors:* Cherukuri, Cogger, Cuttino, Davies, Estrada, Keanini, Lee, Micklow, Munday; *Assistant Professors:* Elliott, Morse, Mullany, Xu; *Visiting*

Assistant Professor: Lawton; *Senior Lecturer:* Hill; *Lecturer:* Raquet; *Adjunct Professors:* Edgworth, Gonsalves, Marlburg, Mason, McCoy, Miller, Murrey, Nussman, Patten, Peindl, Pereira, Snyder, Srinivasan, Thubrikar, Vorburger

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 recognized to 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.

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 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. 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. The student 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.

The program educational objectives are as follows:

- To equip students to use analytical, computational, and statistical methods of engineering measurements and applications.
- To develop the understanding of manufacturing methods so that graduates can contribute to the design, implementation and management of engineering systems.
- To prepare students to engage in the engineering design process by developing their skills at problem solving, planning, collaboration, and communication.
- To provide an education that allows graduates to understand the economic and ethical impact of their engineering decisions.

- To prepare students for successful participation as engineers in society, for graduate or professional studies, and for lifelong learning.

EARLY-ENTRY PROGRAM: the Master of Science in Mechanical Engineering

1. A student may be accepted into the early-entry Program at any time after completion of 90 semester 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.
2. In order to be accepted to the Mechanical Engineering early entry program, an undergraduate student must have at least a 3.2 overall grade point average and a 3.2 grade point average in the major. The applicant must have taken the appropriate graduate standardized test (GRE) and received acceptable test scores.
3. 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.

The program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202 – Telephone (410) 347-7000.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING AND ENGINEERING SCIENCE (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.

RECOMMENDED SCHEDULE FOR B.S.M.E. DEGREE

Freshman Year

CHEM 1251	Chemistry I.....	3
CHEM 1251L	Chemistry I Lab.....	1
ENGL 1101	English I.....	3
ENGR 1201	Intro to Engineering I.....	2
LBST 110x	Arts & Society.....	3
MATH 1241	Calculus I.....	3
		15

ENGL 1102	English II.....	3
ENGR 1202	Intro to Engineering II.....	2
MATH 1242	Calculus II.....	3
PHYS 2101	Physics I.....	3
PHYS 2101L	Physics I Lab.....	1
Science Elective	.....	3
		15

Sophomore Year

ECON 2101	Principles of Economics-Macro.....	3
LBST 2101	Western Cultural & Historic Awareness.....	3
MATH 2241	Calculus III.....	3
MEGR 2141	Engineering Mechanics I.....	3
PHYS 2102	Physics II.....	3

PHYS 2102L	Physics II Lab.....	1
		16
ECGR 2161	Basic Electronic Engineering.....	3
MATH 2171	Differential Equations.....	3
MEGR 2144	Solid Mechanics.....	3
MEGR 2156	Design Project Lab I.....	2
MEGR 2180	Manufacturing Systems.....	3
MEGR 2240	Computational Methods.....	3
		17

Junior Year

MEGR 3111	Thermodynamics I.....	3
MEGR 3121	Dynamic Systems I.....	3
MEGR 3161	Engineering Materials.....	3
MEGR 3171	Measurements & Instrumentation.....	2
MEGR 3171L	Instrumentation Laboratory.....	2
ME Technical Elective	.....	3
		16

MEGR 3112	Thermodynamics II.....	3
MEGR 3114	Fluid Mechanics.....	3
MEGR 3116	Heat Transfer.....	3
MEGR 3122	Dynamic Systems II.....	3
MEGR 3152	Mechanics & Materials Lab.....	2
MEGR 3156	Design Project Lab II.....	2
		16

Senior Year

ENGR 3295	Professional Development.....	1
LBST 2102	Global & Intercultural Connections.....	3
MEGR 3221	Machine Analysis & Design.....	3
MEGR 3251	Thermals/Fluids Lab.....	2
MEGR 3255	Senior Design I.....	2
ME Technical Elective	.....	3
Math Elective	.....	3
		17

LBST 221X	Ethical Issues.....	3
MEGR 3216	Thermal/Fluids Design.....	3
MEGR 3256	Senior Design II.....	2
ME Technical Electives (2)	.....	6
		14

TOTAL HOURS 126

Note: All Mechanical Engineering students must meet the Statistics requirement described on later in this section.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING (B.S.M.E.) (Concentration in Motorsports Engineering)

The Motorsports Engineering concentration area 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.

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 Physics I (PHYS 2101 & 2101L), Calculus I, II, and III (MATH 1241, 1242, and 2241), and Engineering Mechanics I

(MEGR 2141), all with a grade of C or better and have a minimum GPA of 2.5.

RECOMMENDED SCHEDULE FOR B.S.M.E. DEGREE WITH A CONCENTRATION IN MOTORSPORTS ENGINEERING

Freshman Year

CHEM 1251	Chemistry I	3
CHEM 1251L	Chemistry I Lab	1
ENGL 1101	English I	3
ENGR 1201	Intro to Engineering I	2
LBST 110X	Arts & Society	3
MATH 1241	Calculus I	3
		<u>15</u>

ENGL 1102	English II	3
ENGR 1202	Intro to Engineering II	2
MATH 1242	Calculus II	3
PHYS 2101	Physics I	3
PHYS 2101L	Physics I Lab	1
Science Elective		3
		<u>15</u>

Sophomore Year

PHYS 2102	Physics II	3
PHYS 2102L	Physics II Lab	1
MEGR 2141	Engineering Mechanics I	3
MATH 2241	Calculus III	3
ECON 2101	Principles of Economics - Macro	3
LBST 2101	Western Cultural & Historic Awareness	3
		<u>16</u>

ECGR 2161	Basic Electronic Engineering	3
MATH 2171	Differential Equations	3
MEGR 2144	Solid Mechanics	3
MEGR 2156	Design Project Lab I*	2
MEGR 2180	Manufacturing Systems	3
MEGR 2240	Computational Methods	3
MEGR 2299	Motorsports Clinic I	1
		<u>18</u>

* Automotive Engineering Area

Junior Year

MEGR 3111	Thermodynamics I	3
MEGR 3121	Dynamic Systems I	3
MEGR 3161	Engineering Materials	3
MEGR 3171	Measurements & Instrumentation	2
MEGR 3171L	Instrumentation Laboratory	2
Motorsports Technical Elective		3
		<u>16</u>

MEGR 3112	Thermodynamics II	3
MEGR 3114	Fluid Mechanics	3
MEGR 3116	Heat Transfer	3
MEGR 3122	Dynamic Systems II	3
MEGR 3152	Mechanics & Materials Lab	2
MEGR 3156	Design Project Lab II*	2
		<u>16</u>

* Automotive Engineering Area

Senior Year

ENGR 3295	Professional Development	1
LBST 2102	Global & Intercultural Connections	3
MEGR 3221	Machine Analysis & Design	3
MEGR 3251	Thermals/Fluids Lab	2
MEGR 3355	Motorsports Clinic II	2

Motorsports Technical Electives (2)	6
<u>17</u>	

LBST 221X	Ethical Issues	3
MEGR 3216	Thermal/Fluids Design	3
MEGR 3356	Motorsports Clinic III	2
Math Elective**		3
Motorsports Technical Elective		3
		<u>14</u>

TOTAL HOURS 127

Note: All Mechanical Engineering students must meet the Statistics requirement described below.

University General Education requirements are met with the 12 credit hours of Liberal Studies electives to meet the objectives of a broad education consistent with the educational goals of the profession. The science elective must be chosen from the physical, life, or earth sciences to complement the student's overall educational plan and to satisfy the college degree requirement. A math elective is required to broaden the student's mathematical skills.

All MEGR students must complete a statistics requirement by taking either STAT 3128 (Probability and Statistics for Engineers) or MEGR 3282 (Statistics Process Control and Metrology).

- STAT 3128 simultaneously counts as a mathematics or technical elective.
- MEGR 3282 counts as a technical elective.
- Students will **not** receive credit for both STAT 3128 and MEGR 3282.

Students who fulfill the statistics requirement with MEGR 3282 may select their math elective from MATH 2164 or a 3000 level mathematics course approved by the Department.

The technical electives are chosen in consultation with an academic advisor. The student can use these electives to (1) obtain some breadth within the engineering sciences by choosing additional advanced courses from the various engineering sciences; (2) obtain significant depth within a particular area of mechanical engineering, or engineering science, through the use of available engineering science, mechanical engineering, science, mathematics and other engineering courses; and (3) prepare for graduate work in mechanical engineering, engineering science or some other engineering areas.

All mechanical engineering majors must satisfactorily complete ENGR 1201 during their first semester in attendance in mechanical engineering at UNC Charlotte. Mechanical engineering students must maintain a GPA of 2.0 in their major.

The Motorsports concentration area has three additional requirements:

1. Individual and team design projects beginning in the sophomore year (Project Lab I & II) must be completed in the automotive engineering area.
2. Students must complete Motorsports Clinic II, and III (MEGR 3355, 3356) in place of Senior Design I & II (MEGR 3255 & 3256).

3. Students must select all three required technical electives from the prescribed list of motorsports engineering courses: MEGR 3210, MEGR 3211, MEGR 4112, MEGR 4143, or MEGR 4144. Other suitable technical electives such as MEGR 3890 may be approved by the Motorsports Engineering Faculty Advisor or Department Chair.

COLLEGE OF HEALTH AND HUMAN SERVICES

Dean: Schmalzing; *Associate Dean:* Neese

Purpose. The College of Health and Human Services provides professionally recognized nursing, health fitness, athletic training, health promotion, health administration, and social work education programs, continuing education programs, outreach services, research, and professional activities to advance health care science, practice, health promotion, and human services for the peoples of North Carolina.

Programs. Degrees awarded through the College are the Bachelor of Science in Nursing (B.S.N.), the Master of Science in Nursing (M.S.N.), the dual degree Master of Science in Nursing and Master of Health Administration (M.S.N./M.H.A.), Bachelors of Science in Health Fitness (B.S.), Bachelor of Science in Athletic Training (B.S.), Master of Science in Clinical Exercise Physiology (M.S.), Master of Science in Health Promotion (M. S.), the Bachelor of Science in Social Work (B.S.W.), the Master of Science in Social Work (M.S.W.), and the Master of Science in Health Administration (M.H.A.). All nursing degree programs offered by the School of Nursing are accredited by the Commission on Collegiate Nursing Education (CCNE). The B.S.N. program is approved by the North Carolina Board of Nursing. The B.S.W. and M.S.W. programs are accredited by the Council on Social Work Education. The Athletic Training Education Program is accredited by the Commission on the Accreditation of Allied Health Education Programs (CAAHEP). The nurse anesthesia concentration in the M.S.N. program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA).

Technical Standards. Technical standards define the attributes that are considered necessary for students 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. All students who earn an undergraduate degree within the College of Health and Human Services are required to demonstrate

proficiency in the language of their choice through the 1202 level with the exception of the students enrolled in the BSW program who must demonstrate proficiency in the language of their choice through the intermediate 2000 level.

Proficiency can be demonstrated in the following ways: (1) completing the required coursework 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 language 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 1202 course, completing 1201 and placing out of or earning transfer or transient credit for 1202).

School of Nursing

Director: Larsen

The School of Nursing consists of two departments: (1) Adult Health Nursing and (2) Family and Community Nursing. The School offers the B.S.N. degree, both entry level and RN-B.S.N. completion curricula, the RN-M.S.N. curriculum, and the M.S.N. degree with six specialty concentrations. Options of traditional classroom education or distance, web-based, education are available in the School of Nursing for the RN/B.S.N. completion program and one of the six M.S.N. specialty concentrations.

Department of Adult Health Nursing

Chairperson: Dienemann; *Professors:* Larsen, Wilmoth; *Associate Professors:* Curran, Hardin, Moore, L. Steele; *Assistant Professors:* Kao, Sanders; *Lecturers:* Coffman, Daniels, Hartman, Padilla, J. Steele, Smith

Department of Family and Community Nursing

Chairperson: Cody; *Associate Professors:* Edwards, Foss, Janken, Langford, Neese, Newman; *Assistant Professors:* Maynard, Yousey; *Lecturers:* Flood, Gossett, Kazemi, Long, Luby, Morris, Patton, Ruth, Toth

BACHELOR OF SCIENCE IN NURSING

The Bachelor of Science in Nursing degree (B.S.N.) requires a minimum of 120 semester hours. A student must earn the last 25% of baccalaureate degree requirements at UNC Charlotte.

Upper-Division Nursing Major

Requirements for Admission. Admission decisions to the Upper-Division Nursing Major are made by the School for the Fall and Spring semesters of each academic year. Not all applicants who meet the minimum requirements can be accommodated. *Applicants are competitively reviewed for admission based on their cumulative grade point average on college transferable coursework and their grade point average in the required prerequisite science 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 Nursing major are: a cumulative grade point average of 2.5 or better in all college coursework, a minimum of a C in all required prerequisites, and the completion of required nursing prerequisites by the end of the Spring semester prior to the Fall for which application is made and end of the summer semester for the Spring application. Effective Fall 2005, all admitted Nursing majors must be certified as a nursing assistant (CNA I).

Completed applications are accepted through January 31 of the academic year preceding the Fall for which admission is sought, and August 31 of the academic year preceding the Spring for which admission is sought. Application forms are available in the Office of Student Services, College of Health and Human Services. Admission decisions are communicated in writing by the School. Applicants who are not admitted may reapply for a future term.

All students admitted to the pre-licensure B.S.N. curriculum must 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).

Prerequisites. Students are required to complete ENGL 1101; ENGL 1102; CHEM 1203 and 1204 (or CHEM 1251 and 1252); BIOL 1273, 1274, and 1259; MATH 1100; STAT 1222 (or STAT 1220 or 1221); PSYC 1101; SOCY 1101 or ANTH 1101; NURS 2100, NURS 2200, and NURS 2201 prior to enrollment in clinical nursing courses. The School of Nursing strongly recommends LBST 2211 as a part of the student's general education requirements.

Pre-Nursing. Freshmen seeking admission to the nursing major may be admitted to Pre-Nursing. Transfer and change of major students who have not completed all prerequisites may be admitted to Pre-Nursing; however, these students must have a minimum overall 2.5 GPA on all college work attempted to be a Pre-Nursing major. **Admission to Pre-Nursing does not automatically admit an applicant to the Nursing Major.**

RN/BSN Curriculum

Requirements for Admission. Registered Nurses seeking a Bachelor of Science in Nursing degree may apply for admission to the RN/B.S.N. curriculum. Criteria for admission to the program are a current unencumbered license as a Registered Nurse in North Carolina, a cumulative grade point average of 2.5 or better 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 cumulative GPA in all college transferable coursework and their GPA in required prerequisite science courses.* Students are admitted in cohorts two times each academic year. Completed applications are accepted from November 15 to March 15 for the fall cohort and from May 15 to September 15 for the spring cohort. Applications are available from the Office of Student Services in the College. Admission decisions are communicated in writing by the School. Applicants who are denied may reapply.

All students admitted to the RN-B.S.N. 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-B.S.N. nursing curriculum is offered through two formats. Students may enroll in the totally web-based curriculum (through Distance Education) or in the traditional, face-to-face curriculum. Each curriculum is eight courses and 30 credit hours in length.

RN/B.S.N. Curriculum Prerequisites. Students are required to complete ENGL 1101; CHEM 1203 and 1204 (or CHEM 1251 and 1252); BIOL 1273, 1274, and 1259; STAT 1222 (or 1220 or 1221); PSYC 1101 and PSYC 3151; SOCY 1101 and 2132; and NURS 2200 (or an equivalent growth and development course).

Pre-RN/B.S.N. Registered nurses seeking admission to the RN/B.S.N. curriculum who need to complete nursing prerequisites and/or General Education courses may apply for admission to Pre-RN/B.S.N. Applicants must have a cumulative GPA of at least 2.5 on all college work attempted. **Admission to Pre-RN/B.S.N. does not automatically admit an applicant to the RN/B.S.N. Curriculum.**

Prerequisites for Participation in Clinical Experiences

Immunization and Health Status. Prior to admission to the major, all students must submit evidence of a physical examination, including specific communicable disease screening or proof of immunization. The P.P.D. must be repeated and the results submitted annually as long as the student is enrolled in clinical courses. Students must present documentation of a completed series of HBV immunizations prior to any contact with patients/clients, or sign a declination form indicating a refusal of the vaccination. All immunizations must be kept current throughout the program.

CPR Certification. For all clinical courses, it is the student's responsibility to obtain and maintain CPR Certification (adult, infant and child) for health care providers. The only CPR certification accepted is the American Heart Association – Health Care Provider and the Red Cross – Professional Rescuer. Evidence of current CPR certification must be kept on file in the Office of Student Services during enrollment in the professional program.

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.
Students in a professional program 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.

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:
www.health.uncc.edu/students/handbooks.cfm?dept=student
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.

CURRICULUM OUTLINE: B.S.N. DEGREE

LOWER DIVISION (64 credits)

Freshman Year

ENGL 1101 English Composition	3
MATH 1100 College Algebra and Probability	3
PSYC 1101 General Psychology	3
CHEM 1203/1203L (or 1251/1251L) General Chemistry	4
Foreign Language 1201 (or pass the proficiency exam)	3
	16

ENGL 1102 Writing in the Academic Community	3
STAT 1220, 1221, or 1222 Statistics	3
CHEM 1204/1204L (or 1252/1252L) General Chemistry	4
Foreign Language 1202 (or pass the proficiency exam)	3
LBST 1100 series: Arts, Literature, and Culture	3
	16

Sophomore Year

BIOL 1273/1273L Human Anatomy and Physiology	4
NURS 2100 General Nutrition	3
SOCY 1101 (or ANTH 1101)	3
LBST 2101 Western Cultural & Historical Awareness	3
LBST 2102 Global Connections	3
	16

BIOL 1259/1259L Bacteriology	4
BIOL 1274/1274L Human Anatomy & Physiology II	4
NURS 2200 Human Growth & Development	3
NURS 2201 Communication in Caring Relationships	2
LBST 2200 Series: Ethical Issues & Cultural Critique	3
	16

UPPER DIVISION (min. 60 credits)

Junior Year

NURS 3102 Introduction to Nursing Science	3
NURS 3105 Concepts of Professional Nursing	2
NURS 3106 Skill Set I - Basic	1
NURS 3107 Pathophysiology	3
NURS 3108 Health Assessment	3
NURS 3120 Introduction to Community Health	2
NURS 3420 Practicum in Community Health Assessment	1
	15

NURS 3205 Pharmacology	3

NURS 3206 Skill Set II – Intermediate	1
NURS 3230 Illness & Disease Management	2
NURS 3240 Emerging and Developing Family	3
NURS 3430 Practicum Illness & Disease Mgmt	3
NURS 3440 Practicum/Emerging & Developing Family (W)	3
	15

Senior Year

NURS 4100 Nursing Care of the Aging Adult	3
NURS 4106 Skill Set III – Advanced	1
NURS 4120 Psychiatric Mental Health Nursing	2
NURS 4130 Complex Illness & Disease Mgmt	3
NURS 4420 Practicum/ Psychiatric Mental Health Nursing	3
NURS 4430 Practicum/Complex Illness & Disease Mgmt (O)	3
	15

NURS 4201 Info Technology Applications in Health Care	2
NURS 4203 Leadership in Nursing Practice	3
NURS 4240 Population Focused Nursing	2
NURS 4440 Practicum in Population Focused Nursing	1
NURS 4450 Design and Coordination of Care (W)	3
NURS 4900 Research in Nursing Practice	2
XXXX XXX Open Elective*	2-3
	15-16

Total Credits for BSN program 124-125

*Approved Nursing Electives

NURS 4292 Enhancing Clinical Judgment	3
NURS 4293 Professional Communication: Clinical Decision Making & Ethical Reasoning	3
NURS 4294 Bldg Community Response to Domestic Violence	3

CURRICULUM OUTLINE: RN/B.S.N. COMPLETION

General Education Requirements and Prerequisites ⁽¹⁾ for the Nursing Major

ENGL 1101 ¹	3
ENGL 1102 ¹	3
PSYC 1101 ¹	3
PSYC 3151 ¹	3
SOCY 1101 ¹	3
SOCY 2132 ¹	3
CHEM 1203 or 1251 ¹	4
CHEM 1204 or 1252 ¹	4
Foreign Language ²	3
STAT 1220, 1221, 1222 ¹	3
MATH 1100	3
Foreign Language ²	3
LBST 1100 series	3
BIOL 1259 ¹	4
BIOL 1273 ¹	4
BIOL 1274 ¹	4
NURS 2200 ¹	3
LBST 2101	3
LBST 2102	3
LBST 2200 series	3

RN/B.S.N.: UPPER-DIVISION NURSING MAJOR

NURN 3100 ³ Professional Nursing Perspectives ³	3
NURS 3200 Research & Theoretical Foundations of Nursing	3
NURS 4090 Selected Topics in Nursing (may be taken Fall or Spring)	2-3
NURS 3113 Health Assessment	3
NURN 4400 Professional Nurse Practicum/Seminar	6

NURS 4090 Selected Topics in Nursing (may be taken Fall or Spring).....	3
NURN 4251 Issues in Nursing Leadership	3
NURS 3252 Community Health Nursing	6
NURN 4170 Info Tech: Applications in Health Care.....	3

¹ Prerequisite to Nursing

² Students must be proficient through the 1102 level through coursework or proficiency testing

³ Students are awarded 36 credit hours upon successful completion of NURN 3100

EARLY-ENTRY OPTION: the Master of Science in Nursing

The early-entry RN/M.S.N. option is designed for highly qualified diploma or AD prepared registered nurses who wish to follow an accelerated route to the M.S.N. degree. Students entering this option must first be admitted to the RN/B.S.N. curriculum. During the first semester of the RN/B.S.N. curriculum, students apply for admission to the M.S.N. program.

Students must meet all admission requirements of the M.S.N. program to include satisfactory performance on the GREs or MATs, have a GPA of at least 3.2 overall, completed at least 75 hours of college coursework, letters of recommendation, a minimum of one year of nursing practice, and have completed at least 9 hours of work at a senior University. Students can be admitted to the following specialty concentrations: Community Health, Adult Health, MSN/MHA, Family Nurse Practitioner, or Psych/Mental Health Nursing. A student may not be admitted into the program until completion of at least 90 undergraduate hours.

Upon conditional admission to the M.S.N. program, twelve graduate credit hours will be substituted for twelve required undergraduate hours. Each of the specialty concentrations has different combinations of the twelve graduate replacement hours.

Department of Health Behavior and Administration

Chairperson: Harver; *Professors Emeriti:* Berne, Pyle; *Professors:* Buchanan, Schmalig; *Associate Professor:* Narine, *Director of the MHA Program;* *Assistant Professors:* Hartos, Troyer (Joint Appointment); *Adjunct Professors:* Brandon, Tong; *Adjunct Associate Professors:* Bosley, Dmochowski, Hardin; *Adjunct Assistant Professor:* Barkley

The Department of Health Behavior and Administration at UNC Charlotte engages in research, teaching, and service to produce scholars and leaders prepared: to promote and improve human health across the lifespan; to support the optimal organization and management of healthcare locally, nationally, and internationally; and, to deliver efficient, effective, and accessible high quality health services, particularly to vulnerable populations.

The Department of Health Behavior and Administration is engaged in the development and implementation of interdisciplinary academic and research programs. Current faculty research themes include: risk for chronic disease;

life span health issues; health issues of vulnerable populations; and, health-related measurement, evaluation, and outcomes.

The Department offers an interdisciplinary minor in Health Studies. 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.

MINOR IN HEALTH STUDIES

Interdisciplinary Studies

Coordinator: Jessica Hartos

The Interdisciplinary Health Studies Minor was created to support 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 interdisciplinary health studies minor extends students' working knowledge of health applications, better preparing 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 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.

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 Health Studies is awarded only to students completing an undergraduate major at UNC Charlotte. A minor in Health Studies consists of 22 semester hours: 13 hours must come from a set of restricted electives and nine hours must come from a set of unrestricted electives. To qualify for the Health Studies minor, students must have a grade point average of 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.

Required courses (13 hours):

HLTH 2101 Healthy Lifestyles (3)
HLTH 4299 Epidemiology (3)
PHIL 3228 Healthcare Ethics (3)
ANTH 2141 Principles of Biological Anthropology (4)

or

BIOL 1273 & 1273L Human Anatomy & Physiology, and Lab (4)

or

BIOL 3273 & 3273L Animal Physiology, and Lab (4)

or

PSYC 1101 & 1101L General Psychology, and Lab (4)

Unrestricted Electives (9 hours)

ANTH 3122 Culture, Health, and Disease (3)
 GRNT 2100 Introduction to Gerontology (3)
 GRNT 3115 Health and the Aging Process (3)
 HLTH 3140 Behavior Change Theories and Practice (3)
 HLTH 4300 Global Health Issues (3)
 POLS 3125 Health Care Policy (3)
 PSYC 2160 Introduction to Health Psychology (3)
 SOCY 4130 Sociology of Health and Illness (3)

Department of Kinesiology

Chairperson: Lightfoot; *Professors Emeriti:* Bostian, Murphy, Tillotson; *Associate Professor Emeriti:* Healey; *Associate Professor:* Turner; *Assistant Professor:* Jung; *Lecturers:* Barto, Brooks, Fielding, Kohn, Loflin, Probst, Wdowik, Willford, Wood

Kinesiology is the study of human movement and the application of the knowledge gained to the whole range of movement-supported performance, from reading and writing to throwing and balancing. Undergraduate opportunities include a Bachelor of Science degree in Health Fitness, a Bachelor of Science degree in Athletic Training, a Master of Science in Clinical Exercise Physiology, and curricula in Lifetime Fitness and Movement.

The **Health Fitness** major offers preparation for employment as health fitness practitioners in business and industry, health agencies, hospitals, fitness centers, or any other setting which provides health enhancement programs for clients. The **Athletic Training** major prepares students for certification and licensure as athletic trainers with career opportunities in high schools, colleges/universities, medical clinics, business and industry, professional sports teams, and commercial health agencies. The **Pre-Health Kinesiology** major is the classification that indicates that you are in a preparatory program for either the Athletic Training major or the Health Fitness major. Personal health enhancement opportunities are available through **Lifetime Fitness and Movement** courses.

PRE-KINESIOLOGY

Applicants who satisfy freshman or transfer requirements for admission to the University and who will apply to either the **Athletic Training OR Health Fitness** majors are eligible for admission to the Pre-Kinesiology major. All students entering the University in Summer 2003 or later, will be required to complete the revised General Education requirements. **A suggested sequence of courses for Pre-Kinesiology students that meet these General Education requirements as well as the prerequisites for both Health Fitness and Athletic Training can be found at www.health.uncc.edu/knes.**

Students who apply for either the **Athletic Training OR Health Fitness** major are initially classified as Pre-Kinesiology majors until they meet the following requirements: cumulative GPA of 2.0 or higher; completion of 60 hours; and successful (grade of C or better) completion of BIOL 1273, BIOL 1273L, BIOL 1274, BIOL 1274L, CHEM 1203, CHEM 1203L, CHEM 1204, CHEM 1204L, ITCS 1101, STAT 1222, COMM 1101, COMM 2105, MATH 1101, HLTH 2101, KNES 2150, and KNES 2290. Students applying for the **Athletic Training** major must also complete KNES 2294 and KNES 2295 with a grade of C or better and have a cumulative GPA of 2.5 or higher.

BACHELOR OF SCIENCE IN HEALTH FITNESS (HEFT)

This degree program offers preparation for employment as health fitness practitioners in business and industry, health agencies, hospitals, fitness centers or any other setting which provides health enhancement programs for clients. The courses in this major prepare the student to sit for the American College of Sports Medicine Health Fitness Instructor certification. Required courses are HLTH 3140, KNES 3100, 3260, 3280, 3281, 3286, 3287, 4121, 4132, 4286, 4293, 4294, 4490, and 4660. Additionally, the student must complete KNES 1201 and three other activity courses of their choosing.

Students should use the following suggested course sequence to plan their class schedules once they are accepted into the Health Fitness program:

Junior Year:

Fall Semester

KNES 3260 Nutrition & Health Fitness
 KNES 3100 Health Fitness Leadership & Instruction
 KNES 3280 Exercise Physiology
 KNES 3281 Exercise Physiology Lab
 KNES Activity Course - Choice of Activity course
 Foreign Language

Spring Semester

HLTH 3140 Behavior Change
 KNES 3286 Exercise Testing
 KNES 3287 Exercise Testing Lab
 KNES Activity Course - Choice of Activity course
 LBST 2101 Western Tradition
 Foreign Language or Elective

Senior Year:

Fall Semester

KNES 4121 Health Fitness Pharmacology
 KNES 4286 Exercise Prescription
 KNES 4293 Biomechanics
 KNES 4294 Biomechanics Lab
 Elective
 Elective

Spring Semester

KNES 4660 Practitioner Seminar
 KNES 4132 Lifetime Weight Management
 KNES 4490 Internship (6 credit hours)*

**Students must have completed KNES 1201 and three additional activity courses before registering for KNES 4490.*

A complete, updated sequence of courses can be found at www.health.uncc.edu/knes.

BACHELOR OF SCIENCE IN ATHLETIC TRAINING (ATRN)

The emphases of the curriculum are 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 the knowledge and skills needed to pass the certification exam of the Board of Certification for athletic training (BOC). Required courses in the upper division are KNES 3260, 3280, 3281, 3286, 3287, 3288, 3289, 3290, 3291, 3292, 3293, 3295, 3400, 3401, 4121, 4132, 4286, 4290, 4291, 4292, 4293, 4294, 4400, 4401, and 4660.

Admission. 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 fall 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 satisfaction of the minimum requirements does not guarantee 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, possible drug testing and criminal background clearance, universal precaution training, clinical experiences, and successful completion of progression criteria. A detailed description of the requirements of the program can be found in the BS in Athletic Training Student Handbook located in the Department of Kinesiology and on the College of Health and Human Services web site at:

www.health.uncc.edu/students/handbooks.cfm?dept=students

Students applying for admission to the Athletic Training major must meet the following minimum academic requirements.

- Cumulative GPA of 2.5 or better in all college course work
- Completion of 60 hours
- Successful completion (grade of C or better) in all prerequisites for athletic training: BIOL 1273, BIOL 1273L, BIOL 1274, BIOL 1274L, CHEM 1203, CHEM 1203L, CHEM 1204, CHEM 1204L, ITCS 1101, STAT 1222, COMM 1101, COMM 2105, MATH 1100, HLTH 2101, KNES 2150, KNES 2290, KNES 2294**, and KNES 2295**.
- Proof of current CPR for the Professional Rescuer (or equivalent) certification
- Completion of the Athletic Training Education Program Application Packet

- Completion of all athletic training major prerequisites in the spring semester prior to the fall for which application is being made

Students should use the following suggested course sequence to plan their class schedules once they are accepted into the Athletic Training program:

Junior Year**

Fall Semester

KNES 3260 Nutrition and Health Fitness
KNES 3280 Foundation of Exercise Physiology
KNES 3281 Foundation of Exercise Physiology Lab
KNES 3288 Upper Body Injury Evaluation
KNES 3289 Upper Body Injury Evaluation Lab
KNES 3290 Lower Body Injury Evaluation
KNES 3295 Lower Body Injury Evaluation Lab
KNES 3400 Athletic Training Clinical I

Spring Semester

KNES 3286 Exercise Testing
KNES 3287 Exercise Testing Lab
KNES 3291 Therapeutic Modalities
KNES 3292 Therapeutic Modalities Lab
KNES 3293 General Medical and Psychosocial Aspects of Athletic Training
KNES 3401 Athletic Training Clinical II

Senior Year

Fall Semester

KNES 4121 Health Fitness Pharmacology
KNES 4286 Exercise Prescription
KNES 4290 Therapeutic Exercise
KNES 4291 Therapeutic Exercise Lab
KNES 4293 Biomechanics
KNES 4294 Biomechanics Lab
KNES 4400 Athletic Training Clinical III

Spring Semester

KNES 4132 Lifetime Weight Management
KNES 4292 Administration of Athletic Training Programs
KNES 4401 Athletic Training Clinical IV
KNES 4460 Practitioner Seminar

***Prerequisites KNES 2294 and KNES 2295 should be taken during the spring semester of the sophomore year.*

A complete sequence of courses can be found online at www.health.uncc.edu/knes.

Department of Social Work

Interim Chairperson: Cousins; *Professor:* Dudley; Popple; *Baccalaureate Program Director:* Cousins; *Associate Professors:* Cousins, Morrow; *Assistant Professor:* Winston, Boyd, Shobe; *Lecturers:* Jordan, Matthews, Miller

The Department 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 degree.

B.S.W. Social work is a profession devoted to helping people function as effectively as possible within their

environment. The BSW degree prepares students for generalist social work practice with individuals, families, groups, organizations and communities. 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. BSW education also provides an excellent foundation for those who wish to pursue graduate study in social work. The BSW program prepares graduates for the North Carolina Certified Social Worker certification.

SOCIAL WORK MAJOR: BACHELOR OF SOCIAL WORK

The major in Social Work leading to the BSW degree consists of 76 credit hours made up of 53 credits in required SOWK courses and 23 credits in required courses from other disciplines.

The core courses for the social work major are: SOWK 1101, 2182, 2183, 3100, 3120, 3181, 3182, 3184, 3201, 3202, 3482, 3484, 3683, and 3685, one social work elective and one other social work or gerontology elective. Other required courses for the social work major are SOCY 1101, BIOL 1110 & Lab; PSYC 1101, POLS 1110, PSYC 3151, SOCY 4156 & Lab, and Foreign Language at the 2050 or 2201 level.

SOCIAL WORK MINOR

A minor in social work requires 18 hours in the following social work courses: SOWK 1101, 2182, 2183, and three SOWK electives to be approved by the Social Work Program. The minor does *not* prepare students for professional social work practice.

THE HONORS COLLEGE

Associate Dean: Dr. Albert Maisto

Website: www.honorscollege.uncc.edu

The Honors College at UNC Charlotte 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 emphasis is on seminars, intensive reading, writing, and discussion in which reasoned self-expression and critical thinking are valued and rewarded. The Honors College is comprised of several distinct programs, each with its own standards for admission and requirements for graduation. Unique enrichment opportunities; including scholarships, study abroad, community service, executive shadowing, special lectures, and individualized senior projects are also available. Some exceptionally talented students are enrolled in more than one program. An honors residence option is also available for all students in the Honors College.

Honors College Programs

THE BUSINESS HONORS PROGRAM

Director: Dr. Jack Hogue; Assistant Director: Ms. Kristine Hopkins

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 issues.

Admission. Students majoring in The Belk College of Business must complete an *Application for Admission* to the Business Honors Program and conduct an interview with the Program Director. Admission to the program is based on the student's demonstrated Honors potential (determined by examining GPA, SAT scores, courses completed, academic and other distinctions, and other factors) and availability of space in the program. If the GPA of a student admitted to the program drops below that required for graduation for two successive semesters, the student will be dismissed from the program.

Courses. Students in the Business Honors Program must complete a minimum of 18 semester hours including BUSN 3780 and 3790, nine hours in business honors sections, and three hours from the University Honors Program. Once students are admitted to Business Honors they are required to complete all business honors sections offered unless they receive permission from the Director of the Business Honors Program. Honors courses cannot be repeated.

Extra-curricular Activities. Students in the Business Honors Program are required to participate in a minimum of 50% of the extra-curricular activities and events offered by the Program during the academic year.

Certification Requirements. To graduate with "Honors in Business," a student must complete the required Honors courses, submit an application for Honors Candidacy at least two semesters prior to graduation, receive a grade of at least B in BUSN 3790, and present a GPA of at least 3.3

overall and 3.3 in all Honors courses for which a grade was assigned.

THE TEACHING FELLOWS PROGRAM

Director: Dr. Misty Hathcock

The NC Teaching Fellows Program provides \$26,000 four-year scholarships annually to 400 high school seniors from across the state. In turn, students must participate in a rigorous and unique four-year teacher preparation program and teach for four years in the public schools of North Carolina. At UNC Charlotte, the NC Teaching Fellows Program fosters scholastic achievement and professional leadership through personal attention and enrichment experiences. Teaching Fellows participate in special activities to complement their involvement in the regular teacher education program. UNC Charlotte's Teaching Fellows Program features a variety of exciting enrichment experiences such as activities designed to build leadership activities, retreats focused on interpersonal and team building skills, weekly seminars on relevant and timely educational issues and trends, cultural events, community service projects, multicultural/diversity activities, opportunities to participate in the University Honors Program, and early and continuous field experiences in NC public schools. NC Teaching Fellows at UNC Charlotte also benefit from the special guidance of a full-time campus director, an academic advisor, and faculty members in the Colleges of Education and Arts and Sciences. Teaching Fellows are housed in the Honors residence hall and receive priority registration. For more information, visit the Teaching Fellows website at www.uncc.edu/teffellows.

THE UNIVERSITY HONORS PROGRAM

Director: Ms. Connie G. Rothwell

Open to talented and highly motivated students of all majors, the University Honors Program (UHP) is designed to challenge and broaden the intellectual growth of UNC Charlotte's most gifted students. The purpose of the University Honors Program curriculum is to provide intellectual excitement for students, to complement traditional disciplinary learning, to encourage concerned, globally-aware citizenship, and to provide a unique social and intellectual mix for both students and faculty. Interdisciplinary courses fit the theme, *"Issues for Human Survival in the 21st Century,"* and are designed to confront political, religious, economic, ecological, gender, race, justice, and human rights related issues and their impact on the global community and the human condition. Through its core courses, cultural enrichment opportunities, a strong commitment to citizenship and service, and an individually designed senior project, honors students have a unique opportunity to customize their honors curriculum to meet their own specific goals. To stimulate discussion and faculty-student interaction, all University Honors Program classes are restricted to a small class size with program permission required for enrollment.

Admission. Any student accepted into the University may apply to The University Honors Program. Acceptance

will be based upon criteria which include: a 2-page application essay stressing personal successes and goals, high school rank indicative of exceptional performance, acceptable SAT scores, and a letter of recommendation. A transcript may also be required.

Entering freshman and continuing students seeking admission to the University Honors Program should review its web page and download an application at www.uhonors.uncc.edu. Admission to the University Honors Program is highly competitive, requiring evidence of a strong record of academic achievement, leadership and a commitment to community service.

Course Work. To graduate with University Honors Distinction, students must satisfy the following requirements:

1. Complete two courses selected from the following *designated honors* sections of the General Education Curriculum (6 hours):

- LBST 2101, (Hx) *Western Cultural and Historical Awareness* (Honors section)
- LBST 2102, (Hx) *Global and Intercultural Connections* (Honors section)
- LBST 2213 (Hx) *Science, Technology and Society* (Honors section)

2. Complete two honors designated 3000 level three-hour topics courses. (6 hours).

3. Satisfy the University Honors Community Service Requirement by completing either LBST 2215 *Citizenship*, or HONR 2750 *Community Service Practicum*. UHP students must complete 40 hours of community service.

4. Satisfy the University Honors Enrichment Requirement by completing either LBST 1105 (Hx) *The Arts & Society* or HONR 2701 *Enrichment Seminar*.

5. Complete HONR 3790 *Honors Senior Project*, or an approved discipline-based honors thesis/project, with a grade of A.

6. Have a minimum overall grade point average of 3.0 and a 3.2 grade point average in University Honors Program designated courses.

7. Obtain the following endorsements:

- Approved Application for Graduation with University Honors Distinction
- Endorsement by the University Honors Program Director
- Endorsement by the University Honors Council

Honors sections for ENGL 1103 (Accelerated College Writing and Rhetoric) and HONR 1100 (Honors Freshmen Seminar) are offered during the fall semester to orient entering freshmen to the philosophy and rigors of the University Honors Program. In addition, courses across a wide variety of disciplines, including Business, Architecture, Biology, Criminal Justice, Dance and Theatre,

History, English, Philosophy, and Political Science, are offered to University Honors Program students on a demand basis and may be used to satisfy the University Honors Program course requirements. In every case, University Honors Program courses include strong humanities components.

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. The commons area of this floor contains a well-equipped computer laboratory for use by honors students, and a study/classroom area where honors classes may meet.

The University Honors Program, in cooperation with the Education Abroad Program, also promotes a comprehensive study abroad program, emphasizing diversity, choice, and flexibility. Some study abroad opportunities are interwoven with specially designed honors classes, while others are combined with the community service aspect of the program. Although study abroad is not required, it is strongly encouraged.

Students in the 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 expected to attend meetings and participate in community service projects each semester.

ACADEMIC DEPARTMENT HONORS PROGRAMS

Many academic departments also have honors programs permitting students to graduate with honors in their academic discipline. In some cases, graduation with honors within an academic discipline can be combined and coordinated with graduation with University Honors distinction. Academic departments that have honors programs include: Anthropology, Art, Biology, Chemistry, Geography & Earth Science, History, Latin American Studies, Mathematics, Philosophy, Physics, Political Science, and Psychology. Information on how to apply and graduate with honors in a specific academic discipline can be found in this *catalog* under each academic discipline with an honors program. In general, disciplined based honors programs are open only to students with junior or senior standing.

THE UNC IN WASHINGTON PROGRAM

Jointly administered through the Honors College and the University Career Center, the UNC in Washington Program provides an opportunity for upper-level students from any major to work and study in Washington, D.C. Students may work in internships at Washington-based organizations such as the U.S. Congress, the U.S. executive branch, corporate headquarters, and nonprofit foundations. Interns are also required to spend 3 hours per week in an academic seminar, the Washington Experience, and must complete a campus based independent study during their internship. Admittance to this program is highly competitive.

PRE-HEALTHCARE AND PRE-MEDICAL SCHOOL ADVISING

The Honors College maintains a proactive pre-health advising office to serve 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 chiropractic medicine.

SCHOLARSHIPS FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDY

The Honors College coordinates applications for many national scholarships for advanced undergraduate and graduate study. These scholarships, including the Rhodes, the Marshall, The James Madison, The Barry M. Goldwater, the Jack Kent Cooke, the Phi Kappa Phi, and National Science Foundation Fellowships require extensive application procedures and are only awarded to the most outstanding applicants. Only students with exemplary academic records--combined with service & leadership—qualify for these highly selective graduates and, in some cases, advanced undergraduate awards. Most also require an on-campus review and institutional endorsement of completed applications.

COLLEGE OF INFORMATION TECHNOLOGY

Dean: Mirsad Hadzikadic; *Associate Dean:* Richard A. Lejk; *Executive in Residence:* Olin Broadway

BACKGROUND AND MISSION

The University of North Carolina at Charlotte's College of Information Technology (IT) 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 College of IT was formed in 2000, 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.

With educational programs rooted in a strong foundation of research, the College of IT 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, and information technology. Committed to the concept of life-long learning, the College also offers undergraduate and graduate certificate programs.

A key component of all College of IT 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 information technology challenges.

The three primary missions of the College of IT are:

- to educate and prepare the information technology professionals of tomorrow;
- to conduct leading-edge research in enterprise information systems; and,
- to partner with area industry to develop information technology solutions.

Computer Science Program. The Computer Science Department offers a wide variety of programs to match the diverse requirements of employers. The computer science major may pursue either a Bachelor of Science or a Bachelor of Arts degree.

The Bachelor of Science program offers the student two very different concentrations: computer science or computer engineering. The computer science option is centered on software development. Theoretically based, this program prepares students to continue their education in master's or doctoral programs, or to enter the business world as a computer scientist. The computer engineering option prepares the graduate to enter the computer industry either as a computer hardware design engineer or as a computer scientist with a heavy dose of mathematics, the physical sciences, and electrical engineering.

The Bachelor of Arts option is in computer science. As in the Bachelor of Science program, the computer science concentration prepares the student to enter the business world as a computer scientist. The emphasis in this program

is less theoretical and mathematical, and more on the applied side.

The curriculum provides flexibility for the student to tailor a program to meet her or his needs and objectives. For the computer science option in the Bachelor of Science or Bachelor of Arts degrees, the student must select a minimum of 15 hours outside of computer science in which to study. This "minor-like" program allows the student to select from the full spectrum of University programs and majors, including the University Honors Program.

Software and Information Systems Program. The Department of Software and Information Systems is primarily focused on the study of technologies and methodologies for information system architecture, design, implementation, integration, and management. An illustrative list of questions/issues of interests includes:

- Analysis and design methodologies of component-based software systems
- Integration and interoperation of information systems
- Theories and methodologies of software development
- Information system security architecture and protocols
- Design of efficient heterogeneous computer networks
- Architectures for distributed systems
- Collaborative system technology and design
- Human/computer interaction
- Design of information systems based on ubiquitous/pervasive computing
- Software engineering
- Quality, testing, and simulation of software designs
- Social, ethical, and policy issues related to IT
- Information system architectures for electronic enterprise
- Technologies for information system privacy

The Department of Software and Information Systems offers a Bachelor of Arts program that focuses on the applications of information technology. Software is the driving force of the emerging information economy. The Department of Software and Information Systems focuses on issues related to developing software, information systems, and their interactions with people. This degree program is committed to best prepare students to match the diverse requirements of employers.

SPECIAL COLLEGE PROGRAMS

Cooperative Education Program. Students in the College of Information Technology may obtain practical work experience while pursuing their degree by participating in cooperative education, whereby a student alternates semesters of academic study with semesters of work experience in industry. The work experience is under the direction of the student's department and is closely related to his or her field of study.

To be eligible for the Co-op program, students in the College of Information Technology must have completed at

least 24 credit hours at UNC Charlotte, including a number of specified courses, with a minimum GPA of 2.50. A transfer student is expected to have completed 12 hours at UNC Charlotte, with those same specified courses.

For an undergraduate to be officially designated as a Co-op student, he or she must participate in at least two semesters of work experience. Consequently, participation in Co-op Education may mean that the student will take five years to complete the programs at UNC Charlotte.

Students interested in learning more about the advantages and opportunities of participating in this program should contact the University Career Center.

Internships. A number of opportunities for internships exist for students in the College. These internships may be with or without pay and with or without academic credit. Students interested in learning more about these opportunities should consult with their advisor and with the College of Information Technology program coordinator in the University Career Center.

Internships, or *49erships*, involve paid or unpaid work in a career-related position for professional experience. A minimum of 80 work hours 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 their freshman year, and have a 2.0 minimum cumulative GPA are eligible. It does not offer academic credit, but it is noted on the student's transcript; students pay a participation fee. Approval for enrollment must be arranged before the student begins his work experience. Students may begin this program during their sophomore year; transfer students must complete one semester at UNC Charlotte before making application for the program. For more information, contact the University Career Center.

Department of Computer Science

Chairperson: Hodges; *Associate Chairperson:* Allen; *Director of Graduate Studies:* Chen; *Director of Freshman Programs:* Frazier; *Bank of America Endowed Chair:* Ribarsky; *Professors:* Mays, Michalewicz, Ras, Wilkinson, Xiao; *Professors Emeriti:* Epstein, Revesz, Schell; *Associate Professors:* Dahlberg, Lejk, Mostafavi, Subramanian; *Associate Professor Emeritus:* Razavi; *Assistant Professors:* Barnes, Fan, Najarian, Shin, Wang, Wu, Yang; *Senior Lecturer:* Cassidy; *Lecturers:* Goodrum, Ilson, Lehman, Scott; *Visiting Assistant Professor:* Wartell; *Adjunct Professor:* Wiczorkowski

Computer Science is the term applied to areas of study centering on the organizational and structural properties of systems, arrays of symbols, and mechanical languages which find their application in the processing and communication of information. The computer scientist's concerns are:

- the organization and interaction of equipment constituting an information processing system
- the development of software systems to control and communicate with equipment

- the derivation and study of procedures and basic theories for the specification of processes, and
- the application of systems, software, procedures, and theories of computer science to other disciplines

The Department of Computer Science offers programs leading to four degrees: Bachelor of Arts, Bachelor of Science, Master of Science, and Ph.D. in Information Technology. (See the *Graduate Catalog* for information on the M.S. and Ph.D. degrees). Students are prepared for their profession through a comprehensive program of courses, aided by some of the latest computer equipment available.

Cooperative Education in Computer Science. By participating in the Cooperative Education program, students in computer science may pursue their education along with alternating 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.

BACHELOR OF ARTS: COMPUTER SCIENCE

The *Computer Science Concentration* consists of 45 hours in computer science, and 15 hours in mathematics. Courses included are: ITCS 1214, 1215, 2163, 2214, 2215, 3102, 3155, 3160, 3166, 3650, 3651, 3651, 3688, and nine semester hours of approved ITCS or IT IS courses numbered 3000 or above; MATH 1120, 1165, 2164, STAT 1220, 1223; or MATH 1241, 1242, 1165, 2164, STAT 2122.

A component of related work must be included, consisting of 15 semester hours, consisting either of a prescribed set of courses from the College of Business and one 3000-level course from a restricted set of choices, 6 hours at the 3000-level or above, plus an additional 9 hours of approved non-computer-related courses, forming an integrated program of secondary strength, or nine semester hours of approved mathematics courses at the 3000 level or above. If the latter option is selected, six hours of additional electives must be selected.

BACHELOR OF SCIENCE: COMPUTER SCIENCE

The *Computer Science Concentration* consists of 51 hours of computer science and 15 hours in mathematics. Courses included are: ITCS 1214, 1215, 2181, 2214, 2215, 3102, 3143, 3155, 3160, 3166, 3182, 3650, 3651, 3688, and nine semester hours of approved ITCS or ITIS courses numbered 3000 or above; MATH 1241, 1242, 1165, 2164, STAT 2122.

A component of related work must be included, consisting of 15 semester hours, consisting either of a prescribed set of courses from the College of Business and one 3000-level course from a restricted set of choices, 6 hours at the 3000-level or above, plus an additional 9 hours of approved non-computer-related courses, forming an integrated program of secondary strength, or nine semester hours of approved mathematics courses at the 3000 level or above. If the latter option is selected, six hours of additional electives must be selected.

BACHELOR OF SCIENCE: COMPUTER SCIENCE, COMPUTER ENGINEERING CONCENTRATION

The *Computer Engineering Concentration* consists of 39 hours of computer science and 18 hours of mathematics. These include: ITCS 1214, 1215, 2181, 2214, 2215, 3102, 3143, 3155, 3182, 3183, 3681, 3682, 3688. MATH 1241, 1242, 1165, 2164, 2171, STAT 2122. Technical Electives: Twelve hours of ITCS/ITIS and ECGR courses that must be approved by the Department.

Students must also complete PHYS 2101, 2101L, 2102, 2102L, and 3141, and CHEM 1251 and 1251L. A component of related work must include 11 hours of electrical and computer engineering courses: ECGR 2111, 2112, 2155, 2156, and 3131. ECON 2101 must also be taken.

Information Science Minor

Requirements for the minor in Information Science include completion of 21 hours of computer science: ITCS 1214, 1215, 2214, 3112, 3143, 3155 and 3160, plus MATH 1165.

Computer Science Minor

Requirements for the minor in Computer Science include completion of 21 hours of computer science: ITCS 1214, 1215, 2214, 2215, 3155, 3160, and 3688, plus MATH 1165.

Certificate Program in Computer Programming

The Department of Computer Science offers a certificate in Computer Programming. A certificate will be awarded by the Department of Computer Science to post-baccalaureate students (students having earned a bachelor's degree in any field, with one semester of calculus), who have completed the course requirements listed below:

ITCS	1214	Introduction to Computing I
ITCS	1215	Introduction to Computing II
ITCS	2214	Data Structures
ITCS	2215	Design and Analysis of Algorithms
ITCS	3112	Design and Implementation of Object-Oriented Systems
ITCS	3155	Software Engineering
ITCS	3160	Data Base Design and Implementation or
ITCS	3145	Introduction to Parallel Computing
MATH	1165	Introduction to Discrete Structures

Certificate Program in Computer Architecture

The Department of Computer Science offers a certificate in Computer Programming. A certificate will be awarded by the Department of Computer Science to post-baccalaureate students (students having earned a bachelor's degree in any field, with one semester or calculus), who have completed the course requirements listed below:

ITCS	1214	Introduction to Computing I
ITCS	1215	Introduction to Computing II
ITCS	2181	Computer Logic and Design
ITCS	3145	Introduction to Parallel Computing
ITCS	3182	Computer Organization and Architecture
ITCS	3183	Hardware Systems Design
ITCS	3143	Operating Systems
ITCS	4181	Microcomputer Interfacing

CURRICULUM OUTLINE: B.A. DEGREE IN COMPUTER SCIENCE

Freshman Year

Fall			Spring		
ITCS	1214	3	ITCS	1215	3
MATH	1120*	3	MATH	1165*	3
ENGL	1101	3	STAT	1220*	3
SocSci		3	Science		3
LBST	110x	<u>3</u>	ENGL	1102	<u>3</u>
		15			15

Sophomore Year

Fall			Spring		
ITCS	2214	3	ITCS	2215	3
ITCS	2163	3	COMM	2105	3
STAT	1223*	3	MATH	2164*	3
ENGL	2116	3	LBST	2102	3
LBST	2101	<u>3</u>	LBST	221x	<u>3</u>
		15			15

Junior Year

Fall			Spring		
ITCS	3102	3	ITCS	3155	3
ITCS/ITIS Elect		3	ITCS	3160	3
Science		4	ITCS	3166	3
Related Work		<u>3</u>	Related Work		<u>6</u>
		13			15

Senior Year

Fall			Spring		
ITCS	3650	3	ITCS	3651	3
ITCS	3688	3	ITCS/ITIS Elective		3
ITCS/ITIS Elect		3	Electives		8
Related Work		3	Related Work		<u>3</u>
Elective		<u>3</u>			17
		15			

Total Hours 120

*A mathematics option consisting of MATH 1241, 1242, 1165, and 2164, and STAT 2122 may be selected as an alternate to the math courses listed.

CURRICULUM OUTLINE: B.S. DEGREE IN COMPUTER SCIENCE

Freshman Year

Fall			Spring		
ITCS	1214	3	ITCS	1215	3
MATH	1241*	3	MATH	1165	3
ENGL	1101	3	MATH	1242	3
SocSci		3	ENGL 1102		3
LBST	110x	<u>3</u>	Science		<u>4</u>
		15			16

Sophomore Year

Fall			Spring		
ITCS	2181	3	ITCS	2215	3
ITCS	2214	3	MATH	2164	3
STAT	2122	3	LBST	2102	3
LBST	2101	3	Science		3
ENGL	2116	<u>3</u>	Related Work		<u>3</u>
		15			15

Junior Year

Fall			Spring		
ITCS	3102	3	ITCS	3688	3

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ITCS 3182	3	ITCS 3155	3
ITCS/ITIS Elective	3	ITCS/ITIS Elective	3
Related Work	<u>3</u>	Related Work	3
	12	LBST 221x	<u>3</u>
			15

Senior Year

Fall		Spring	
ITCS 3650	3	ITCS 3651	3
ITCS 3160	3	ITCS 3143	3
ITCS/ITIS Elective	3	ITCS 3166	3
Related Work	3	Related Work	3
Electives	<u>3</u>	Electives	
	17		15

Total Hours 120

*A mathematics option consisting of MATH 1241, 1242, 1165, and 2164, and STAT 2122 may be selected as an alternate to the math courses listed.

CURRICULUM OUTLINE: B.S. DEGREE, COMPUTER ENGINEERING CONCENTRATION

Freshman Year

Fall		Spring	
ITCS 1214	3	ITCS 1215	3
MATH 1241	3	MATH 1165	3
CHEM 1251	3	MATH 1242	3
CHEM 1251L	1	PHYS 2101L	3
ENGL 1101	3	PHYS 2101L	1
LBST 110x	<u>3</u>	ENGL 1102	<u>3</u>
	16		16

Sophomore Year

Fall		Spring	
ITCS 2181	3	ITCS 2215	3
ITCS 2214	3	ECGR 2111	3
ENGL 2116	3	ECGR 2155	1
LBST 2101	3	MATH 2164	3
PHYS 2102	3	MATH 2171	3
PHYS 2102L	<u>1</u>	LBST 2102	<u>3</u>
	16		16

Junior Year

Fall		Spring	
ITCS 3182	3	ITCS 3102	3
ECON 2101	3	ITCS 3155	3
ECGR 2112	3	ITCS 3688	3
ECGR 2156	1	ECGR 3131	3
PHYS 3141	3	LBST 221x	<u>3</u>
STAT 2122	<u>3</u>		15
	16		

Senior Year

Fall		Spring	
ITCS 3183	3	ITCS 3143	3
ITCS 3681	3	ITCS 3682	3
Tech Electives	6	Tech Electives	<u>6</u>
Free Electives	<u>1</u>		12
	13		

Total Hours 120

EARLY-ENTRY PROGRAM: the Master of Science in Computer Science

1. A student may submit an application after completion of at least 75 undergraduate hours. A student may not be admitted into the program until completion of at least 90 undergraduate hours.
2. An overall GPA of 3.5 or better is required for early-entry into the graduate program.
3. Student must submit satisfactory scores on the aptitude portion of the GRE tests.

Note: Up to 12 hours may be counted toward both BS/BA and MS degrees in Computer Science.

Department of Software and Information Systems

Chairperson: Bei-Tseng (Bill) Chu; *Graduate Coordinator:* Tolone; *Director of Undergraduate Studies:* Long; *Professors:* Chu, Zheng; *Associate Professor:* Tolone; *Assistant Professors:* Ahn, Kang, Lee, Liu, Raja, Wang, Wilson; *Lecturer:* Long; *Adjunct Professors:* Foley, Inskeep, Kitrick, Williams; *Adjunct Lecturers:* Callahan, He, Jancula

The Bachelor of Arts in Software and Information Systems is designed for students interested in pursuing a career in Information Technology with a focus on developing large-scale information systems. This degree will also well prepare students to pursue graduate studies in Information Technology and related application areas. The focus of this program includes:

- Network-based Application Development
- Software Engineering (design, integration, testing and assurance)
- e-Business Technologies
- Information Security and Privacy
- Design and Implementation of Information Environments

The Department of Software and Information Systems offers both undergraduate and graduate programs. The undergraduate program leads to either (1) a Bachelor of Arts in Software and Information Systems or (2) a minor in Software and Information Systems. The graduate program leads to a Master of Science in Information Technology (see the *Graduate Catalog* for information on the M.S. degree). In addition, graduate certificate programs in either (1) Information Security and Privacy or (2) Information Technology Management are available. To assist them in their studies, students have access to advanced computer labs and software where they can practice and experiment in controlled environments. Furthermore, the Department maintains a high degree of interaction with working industry professionals who provide real-world expertise and experience.

Cooperative Education in Software and Information Systems. By participating in the Cooperative Education program, students in the department may pursue their education along with alternating 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.

BACHELOR OF ARTS: SOFTWARE AND INFORMATION SYSTEMS

This program requires 120 credit hours. In addition to the general education requirements for the University, the BA degree requires 45 hours of major courses: ITCS 1214, 1215, 2214, 2215, 3143, 3160, 3166, and 3688; ITIS 2300, 3200, 3300, 3310, 3320, 3650, and 3651; plus six hours of approved ITCS or ITIS courses numbered 3000 or above. 15 hours in mathematics in one of the following mathematics options are also required:

- MATH 1120, 1165, 2164 and STAT 1220, 1223
- MATH 1165, 1241, 1242, 2164, and STAT 2122

Finally, 15 semester hours of courses that form a coherent area of study related to developing applications of information systems are required. Selected in consultation with the students' advisors, these courses permit each student to tailor the degree to more closely match their individual interests.

CURRICULUM OUTLINE: B.A. DEGREE, SOFTWARE AND INFORMATION SYSTEMS (SUGGESTED)

Freshman Year

Fall		Spring	
ITCS 1214	3	ITCS 1215	3
MATH 1120*	3	ENGL 1102	3
ENGL 1101	3	MATH 1165*	3
Science	4	STAT 1220*	3
LBST 110x	<u>3</u>	Science	<u>4</u>
	16		16

Sophomore Year

Fall		Spring	
ITCS 2300	3	LBST 2101	3
ITCS 2214	3	Soc. Sci.	3
STAT 1223*	3	ITCS 2215	3
ENGL 2116	3	Related work	3
MATH 2164*	<u>3</u>	COMM 2105	<u>3</u>
	15		15

Junior Year

Fall		Spring	
ITIS 3300	3	ITCS 3160	3
ITCS 3166	3	Related work	3
ITCS 3688	3	Related work	3
Related work	3	ITIS/ITCS Elective	3
LBST 2102	<u>3</u>	ITCS 3310	<u>3</u>
	15		15

Senior Year

Fall		Spring	
ITIS 3320	3	ITCS 3143	3
ITIS 3650	3	ITIS 3651	3
ITIS 3200	3	LBST 221x	3
Related Work	3	ITIS/ITCS Elective	3
Elective	<u>3</u>	Elective	<u>1</u>
	15		13

Total Hours 120

**A mathematics option consisting of MATH 1165, 1241, 1242, 2164, and STAT 2122 may be selected as an alternate to the math courses listed.*

SOFTWARE AND INFORMATION SYSTEMS MINOR

This program is designed to provide students with the Information Technology knowledge necessary for today's information-based society. Students will not only gain hands-on knowledge of how to use the Internet to develop effective and easy-to-use applications but also will 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 18 credit hours. The following courses (9 credit hours) are required:

- ITIC 1214 – Introduction to Computer Science I
- ITIS 2300 – Introduction to Web-Based Application Development
- ITIS 3132 – Information Systems

Students should select three of the following courses (9 credit hours):

- ITCS 1215 – Introduction to Computer Science II
- ITIS 3130 – Human and Computer Interfaces
- ITIS 3131 – Human and Computer Information Processing
- ITIS 3200 – Introduction to Information Security and Privacy
- ITCS 3160 – Data Base Design and Implementation**
- ITCS 3688 – Computers and their Impact on Society***

***If this course is to be selected, the student must also select ITCS 1215.*

****This course meets the General Education Requirements for written and oral communications.*

SPECIAL PROGRAMS

Learning Communities

Learning Communities are small groups of students and faculty who work closely together creating a “community of learners.” Many of our programs are residential while other communities are geared toward commuter students. In either situation, Learning Community students have the opportunity to quickly make friends and develop a close relationship with UNC Charlotte faculty and staff.

The supportive environment created in the Learning Communities brings students, faculty, staff, and peer mentors together with the common goal of promoting academic and social success. Communities are offered in various academic areas giving participants the opportunity to explore their interests while working in small, comfortable groups on course-related projects.

International Studies

Director: Professor Chernotsky

International Studies is an interdisciplinary program offering both a major and a minor within the College of Arts and Sciences. It 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. For information, see the International Studies section under the College of Arts and Sciences in this *Catalog*.

OFFICE OF INTERNATIONAL PROGRAMS (OIP)

The Office of International Programs offers academic and cultural programs to enhance the learning environment of the University community.

OFFICE OF EDUCATION ABROAD

UNC Charlotte encourages its students to study or have an educational work experience in a foreign country as a part of their undergraduate careers. The Office of Education Abroad offers opportunities to study or work abroad for a year, a semester or a summer. Programs are available in countries virtually all over the world. A semester or year abroad need not cost much more than a semester or year at UNC Charlotte. Students may receive academic credit for all courses taken while overseas and intern or co-op credit for educational work experiences abroad. No time need be lost toward graduating on schedule. Knowledge of a foreign

language is not required to study or work abroad. UNC Charlotte has sent students in architecture, education, business, arts and sciences, engineering, education, and nursing on its education abroad programs.

Students are encouraged to begin planning for study or work abroad while they are freshmen or sophomores. The study abroad experience may take place during the sophomore, junior, or senior year. Regular UNC Charlotte financial aid is often applicable to study abroad and scholarships are available.

The Office of Education Abroad assists students in choosing and applying for the education abroad program. It also provides cross-cultural orientation and re-entry (to the United States) assistance.

INTERNATIONAL STUDENT EXCHANGE PROGRAM (ISEP)

UNC Charlotte is one of approximately 200 U.S. institutions of higher education which are members of the International Student Exchange Program (ISEP). This program allows the UNC Charlotte student to exchange with students from Africa, Asia, Australia, Canada, Europe, and Latin America. The students pay their regular tuition, fees, room and board at UNC Charlotte and exchange places for the year with students from institutions outside the United States who have similarly covered their costs. The student is registered at the foreign institution, taking the same courses, having the same assignments and participating in the same activities as all other students at that institution. This program permits the student to be exposed daily to a different set of cultural values, to new ideas and new world views. ISEP exchanges are small in scale, with only a few students going to each foreign institution.

Further information about the Education Abroad or International Student Exchange programs may be obtained from the Office of Education Abroad.

ENGLISH LANGUAGE TRAINING INSTITUTE (ELTI)

The English Language Training Institute (ELTI) provides intensive English as a Second Language instruction for international students planning to attend American universities or colleges in the United States. ELTI holds three sessions per year--fall, spring, and summer--and offers seven language proficiency levels. Average class size is 12 and students attend classes 20-24 hours per week. Exceptional students in Levels 6 and 7 are eligible to take University courses in addition to their English classes. ELTI also offers a communications course for international teaching assistants and consulting for international faculty at UNC Charlotte. For more information about the ELTI, contact the Program Director in the Office of International Programs.

ROTC Programs

To prepare themselves to serve as commissioned officers in the Air Force or Army, students may participate in the Air Force Reserve Officers' Training Corps (ROTC) offered by the Department of Aerospace Studies or in the Army Reserve Officers' Training Corps (ROTC) offered by the Department of Military Science.

Experiential Learning Programs

The majority of UNC Charlotte students are expected to and do participate in University-sanctioned experiential learning programs (over 64%). 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 424 courses involving clinicals, cooperative education, internships, 49erships, and practicums. Eligible students may also enroll in a 3000 level Psychology course: *Career Decisions and the World of Work* to help them prepare them for experiential learning. The University Career Center (UCC) is a central coordination office for most experiential learning opportunities for the campus and can provide information about the following options:

Cooperative Education: This career related professional program is available to students in the Colleges of Arts and Sciences, Business Administration, Information Technology, and Engineering. Participants must have a 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. Although the experience does not offer academic credit, participants are classified as full-time students and receive transcript notation.

Internships: Internship programs provide an introduction to career options in a professionally related work experience which enables the student to apply classroom learning. This experience is usually unpaid and may offer academic credit if there is appropriate faculty supervision. Students work 8 to 12 hours a week while also taking classes.

The 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. Students may participate in the program after their freshman year provided they have a GPA of 2.0 or better; graduate students must complete 9 credit hours in their graduate program before making application. (Transfer students must successfully complete 12 credit hours at UNC Charlotte before making application.) A minimum of 80 work hours 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 their freshman year, and have a 2.0 minimum

cumulative GPA are eligible. It does not offer academic credit, but it is noted on the student's transcript; students pay a 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. Seventy percent (70%) of the positions in this program are compensated.

UNC in DC Internships through the UNC in Washington Semester Study and Intern Program. Students have the opportunity to study, live and work with 42 other students from 14 different UNC campuses. Three students are selected through a competitive process. Students spend up to 32 hours per week in internships throughout a semester and are matched with supervisors who will integrate them into the daily operation of the organization and help them define research projects and special assignments of importance to the organization. Internships often result in tangible products such as briefings, research memos, policy analyses, and working papers, as well as other valuable career related experiences. Final sites are arranged through the director of the UNC in Washington program in coordination with the University Career Center (UCC) and the Honors College. In addition to internships, students participate in an Honors Course on the *Washington Experience*, as well as take an independent study. Contact the UCC for more information on application materials and deadlines. Students of any major who will be juniors or seniors during UNC in DC participation are eligible to apply. 12 or more credits earned. (*Summer, Fall, and Spring*).

Internships in London through the North Carolina Partnership. The Educational Programs Abroad office offers opportunities for students to engage in valuable internships with London organizations during an 8 week period. 35 hours a week in the summer. Ziff Davis, the Royal Philharmonic Orchestra, The British Museum, and Devonshire Hospital are example sites. Students earn 3 credits. Learn more through the International Programs Office or the University Career Center.

Service Learning Opportunities through the University Career Center. Service Learning opportunities include 49erships in non-profit and government agencies and organizations, enabling students to gain career-related and community service experience while learning about related social, civic, human service, and political issues. Students work a minimum of 80 hours per semester to complete the program. Fall and spring 49erships are part-time, and summer 49erships may be full- or part-time. Students must qualify academically, and pay a registration fee for transcript notation. 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. Students receive transcript notation, but not academic credit.

The Career Prospector Program: This program involves "shadowing" professionals in various career fields, many of whom are alumni, parents, and area managers. Students are able to explore career options and academic interests by conducting informational interviews and observing professionals in the career fields of their choice. The shadowing experiences can last for one day or longer, depending on the schedules of the students and sponsors.

Over 300 sponsors in various career fields participate in this program coordinated through the University Career Center.

Preparation for Professional Schools

Students may begin preparation at UNC Charlotte for a number of professional careers. Depending upon the professional school's requirements, the student may wish to take a degree at UNC Charlotte or to transfer after one, two, or three years.

Preparation for the following programs is offered: chemical engineering, dentistry, forest resources, law, medical technology, medicine, optometry, pharmacy, and veterinary medicine.

The student who plans to enter a professional school is advised to plan his/her program so that general requirements for the bachelor of arts or bachelor of science degree are met in addition to the requirements for the professional program being considered. The student planning to attend a professional school should inform his/her advisor of his/her plans. The student should become familiar with the requirements of the school that he/she plans to attend. **That school, not UNC Charlotte, will determine which UNC Charlotte credits will be accepted for transfer.**

Graduate and professional school entrance requires an extensive commitment and focused career choice. Certain careers required an advanced degree, and the University Career Center (UCC) can help students identify what kind of graduate study will best preparation for the specific career of interest. The UCC offers a workshop entitled "Graduate & Professional School Searches and Your Career," along with resources on careers in many areas of study. In addition, the career resource collection in the office contains information on preparing for the professional exams, backgrounds on the schools offering programs, and in-depth career information. The UCC also hosts a Career Expo + fair which includes several graduate and professional school representatives seeking to attract UNC Charlotte students. Lastly, the UCC maintains lists of what graduate and professional schools past graduates have been admitted to or attended.

It is important to note that there are more application requirements for professional/graduate schools than for undergraduate schools. Application is often an extensive and in-depth process. The UCC can help you plan the applications and career development processes, which includes prior exploration of medicine, law, and various careers requiring advanced degrees through job shadowing, self assessment, career research, and internships.

The Office of Continuing Education currently offers fee-based programs that help students prepare to take the GRE and GMAT exams. Under consideration for the future is a program to help prepare students for the LSAT.

Chemical Engineering. Students seeking a program in chemical engineering should consult the Department of Chemistry for advice concerning available options. However, those students desiring to obtain the Bachelor of Science in Chemical Engineering degree may do so by

transferring to North Carolina State University after spending two years at UNC Charlotte. To be eligible for such transfer, the student must meet the admissions requirements for transfer at North Carolina State University. After transfer, an additional two years normally will be required for the degree.

Dentistry and Medicine. The composite requirements for entrance to most medical and dental schools in North Carolina, South Carolina, Georgia, Tennessee, and Virginia are as follows:

Biology.....	8 hours
General Chemistry	8 hours
Organic Chemistry	8 hours
<i>(Some schools require additional chemistry courses or may not require organic chemistry lab)</i>	
Physics	8 hours
English	6 hours

Students should check with their school(s) of interest for specific requirements.

Please note that these are the published minimum requirements to apply. Most students will need additional coursework and other activities to be competitive for admission. It is essential that students intending to apply to medical or dental schools consult a premed/predent advisor very early in their programs.

Pre-Medical, Pre-professional Committee. The UNC Charlotte Pre-professional Committee consists of faculty members from throughout the University and serves as the main advisory and recommending body for UNC Charlotte students seeking entrance to health professional careers. In order to obtain a recommendation to medical school or dental school from the committee, the student must pick up a recommendation packet from the Biology office during Spring of the year in which applications are being made.

Students working toward entrance to health professional schools are advised to work closely with the Premedical Advisors in the Biology and Chemistry Departments throughout their study at UNC Charlotte.

Allied Health Club. Students interested in health-related careers are encouraged to join the Allied Health Club. The organization sponsors speakers, volunteer opportunities in local hospitals, and trips to see admissions officers and teaching programs in schools throughout the region.

American Medical Students Association. Students may also join AMSA for additional contact with premedical peers. AMSA and Allied Health Clubs commonly coordinate on speakers and information about requirements, activities, and admission to medical school.

Law. The University suggests that the student planning to enter law school consider courses in such areas as accounting, business administration, business law, communications, criminal justice, debating, drama, economics, English literature and composition, finance, history, logic and ethics, mathematics, modern languages, philosophy, political science, psychology, sociology, and statistics. Preparation should include comprehension of and expression in words, the development of a critical understanding of human institutions and values, the

generation of a creative power in thinking, and a working knowledge of the use of the computer in modern society. Thus, any of a number of majors, with wisely selected electives, might provide the broad educational background needed.

Students planning to enter law school should contact the Department of Political Science for advising.

Pre-Law Society. The UNC Charlotte Pre-Law Society is a student pre-law organization. The Society carries on a large number of activities designed to help its members decide whether they wish to attend law school: providing sessions with pre-law advisors and attorneys; taking field trips to pre-law conferences, law schools, law offices and courts; having a guest speaker program on legal and judicial topics; and working on preparations for the LSAT. Membership in the Society is open to all UNC Charlotte students, regardless of major or year at the University. For more information, contact the Department of Political Science.

Medical Technology. The University, through affiliation with several schools of medical technology, offers programs leading to baccalaureate degrees in biology and chemistry, with training in medical technology.

Students interested in this four-year program should contact the Departments of Biology and Chemistry for advising.

Optometry. There are no schools of optometry in North Carolina. Each year, however, the State of North Carolina contracts 24 spaces in out-of-state schools of optometry and partially subsidizes the tuition costs for the students that it selects to attend these schools. Information on these contract programs in Optometry may be obtained from University of North Carolina General Administration.

Students interested in pre-optometry preparation should contact the Departments of Biology, Chemistry, and Physics for advising.

Pharmacy. Students planning to seek a Pharmacy degree will spend at least two to three years at UNC Charlotte taking prerequisite courses, although most successful applicants have completed a baccalaureate degree. Students interested in pre-pharmacy preparation should contact the Department of Biology for advising and visit the pre-pharmacy advising web site at www.bioweb.uncc.edu/GENINFO/Prepharmacy for valuable information about general pre-requisite courses and links to different Pharmacy programs and their specific requirements.

Pre-Pharmacy Club. The UNC Charlotte Pre-Pharmacy Club is a student organization of undergraduates and post-baccalaureate students interested in attending pharmacy school. The club carries on a number of different activities to educate their members about the field of pharmacy and steps needed to gain admission to pharmacy schools. They also perform a variety of volunteer duties, visit pharmacy schools and bring in representatives of various pharmacy schools in North Carolina to speak to their members. The club is open to all UNC Charlotte students, regardless of major or year at the University. Information on this organization can be

found at the club's website at www.sco.uncc.edu/prepharmacy.

Veterinary Medicine. Students should consult with a Pre-Vet Advisor in the Biology or Chemistry Department to determine which courses to take and which courses must be completed by the end of the fall semester in which a student applies for admission to a School of Veterinary Medicine. Students should also consult the school to which they plan to apply for details on courses and extracurricular activities that are required.

COURSE DESCRIPTIONS

Course Descriptions. Course descriptions provide the following information: subject prefix; course number; course title; semester credit hours assigned to the course; the UNC Charlotte General Education requirements that the course satisfies (**O** = Oral Communication and **W** = Writing Intensive); prerequisites and/or corequisites (if any); brief description of the course content; and when the course usually is offered (*Evenings, Yearly, Alternate years, Fall, Spring, Summer, On demand, Internet*). 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. For example:

SUBJ 1234. Title of Course. (Credit Hours) (General Education Requirements Met) Pre/corequisites. Brief description of course content. *(Three lecture hours and one three-hour laboratory per week) (When offered)*

Course Numbering System. Courses are identified by four-digit numbers. The first digit indicates the level of the course: **1000-2999:** lower-division undergraduate; **3000-4999:** upper-division undergraduate. The following second digits designate special types of courses: **0** for topics; **4** for internships and practicum, **5** for cooperative education, **6** for seminars, **7** for Honors courses, **8** for independent study, and **9** for research.

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, unless it has previously been satisfactorily completed.

Crosslisted Courses. A crosslisted 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 crosslisted course for which they are registered.

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 on the following page.

<u>Subject</u>	<u>Prefix</u>	<u>Subject</u>	<u>Prefix</u>
African-American and African Studies	AAAS	Geology	GEOL
Accounting	ACCT	German	GERM
Aerospace Studies	AERO	Greek	GREK
American Studies	AMST	Gerontology	GRNT
Anthropology	ANTH	History	HIST
Architecture	ARCH	Health Behavior and Administration	HLTH
Arts and Sciences	ARSC	University Honors Program	HONR
Art: Academic and Departmental	ARTA	International Business	IBUS
Art: Basic Foundation Studios	ARTB	Bus. Info. Systems and Oper. Management	INFO
Art: Ceramics	ARTC	International Studies	INTL
Art: Drawing	ARTD	Computer Science	ITCS
Art: Education	ARTE	Software and Information Systems	ITIS
Art: Fibers	ARTF	Italian	ITLN
Art: Graphic Design	ARTG	Japanese	JAPN
Art: History	ARTH	Journalism	JOUR
Art: Illustration	ARTL	Kinesiology	KNES
Art: Multi-Media	ARTM	Latin	LATN
Art: Painting	ARTP	Liberal Studies	LBST
Art: Printmaking	ARTR	Latin American Studies	LTAM
Art: Time Arts/Photography	ARTT	Mathematics Education	MAED
Art: Sculpture	ARTZ	Mathematics	MATH
Biology	BIOL	Middle Grades Education	MDLG
Business Law	BLAW	Middle, Secondary, and K-12 Education	MDSK
Business Honors	BUSN	Mechanical Engineering	MEGR
Civil Engineering	CEGR	Management	MGMT
Chemistry	CHEM	Marketing	MKTG
Child and Family Development	CHFD	Meteorology	METR
Chinese	CHNS	Military Science	MSCI
Criminal Justice	CJUS	Music Education	MUED
Communication Studies	COMM	Music	MUSC
Dance	DANC	Nursing: R.N.	NURN
Dance and Theatre	DATH	Nursing	NURS
Electrical and Computer Engineering	ECGR	Operations Management	OPER
Economics	ECON	Operations Research	OPRS
Education	EDUC	Philosophy	PHIL
Education Instructional Systems Technology	EIST	Physics	PHYS
Elementary Education	ELED	Political Science	POLS
English	ENGL	Portuguese	PORT
Engineering	ENGR	Psychology	PSYC
Earth Sciences	ESCI	Reading	READ
Civil Engineering Technology	ETCE	Religious Studies	RELS
Electrical Engineering Technology	ETEE	Russian	RUSS
Fire Safety Engineering Technology	ETFS	Secondary Education	SECD
Engineering Technology	ETGR	Sociology	SOCY
Industrial Engineering Technology	ETIN	Social Work	SOWK
Mechanical Engineering Technology	ETME	Spanish	SPAN
Manufacturing Engineering Technology	ETMF	Special Education	SPED
Finance	FINN	Statistics	STAT
Languages and Culture Studies	FORL	Theatre	THEA
French	FREN	Translating	TRAN
Geography	GEOG	Women's Studies	WMST

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AFRICAN-AMERICAN AND AFRICAN STUDIES (AAAS)

AAAS 1100. Introduction to African-American and African Studies. (3) A multicultural focus on contemporary societies that include black people and the methodology, key issues and themes in African-American and African Studies. Readings on the experiences of black people in their interaction with other cultures in Africa, America, and Europe. *(Fall, Spring)*

AAAS 1103. The African Experience I. (3) Introductory survey of the history and culture of African peoples within the context of pre-colonial, colonial, and independent Africa. Focus on unique social, political, economic processes, and problems in Africa. In-depth study of outstanding African leaders as representatives of their societies. *(Fall)*

AAAS 1104. The African Experience II. (3) Exploration of contemporary issues in Africa and their impact on African-Americans and other Africans in the diaspora. Impact of European colonization on Africa, including topics such as revolutionary and reform-oriented political movements, racism, imperialism, nationalism, urbanization, and Pan-Africanism. *(Spring)*

AAAS 1111. The African-American Experience Through Reconstruction. (3) African-American experience in America through Reconstruction. Topics include: system of slavery; free blacks in north and south; compromises with the peculiar institution; and impact of the civil war and reconstruction on the freedom, citizenship, and suffrage of African-Americans. *(Fall)*

AAAS 1112. The African-American Experience: Reconstruction Through the Present. (3) Prerequisites: AAAS 1100 and 1111 for majors and AAAS 1100 or 1111 for non-majors. An interdisciplinary survey of key issues, debates, and personalities in the African-American experience from 1865 to the present. *(Spring)*

AAAS 2105. Black Images in the Media. (3) Crosslisted as COMM 2120. Examination of African-American images projected through electronic and print media, historically and currently. *(Yearly)*

AAAS 2106. Literary Analysis of Black Protest of the 1960s. (3) Selected African-American literary works examined as outgrowths of the 1960s protest movement. Poetry, drama, and nonfiction of period studied. *(Spring)*

AAAS 2201. Introduction to Human Relations. (3) Prerequisite: AAAS 1100. Understanding of self and others in a pluralistic society; analysis of theories of personal growth and interaction within the context of differing multi-ethnic values, mores and contributions. *(Fall, Spring)*

AAAS 2203. African-American Culture I. (3) Focus on the aesthetic dimensions of African-American culture through examination of aspects of literature, music, drama, art, and dance. *(Fall)*

AAAS 2204. African-American Culture II. (3) Study of Black culture as manifested in social, political, economic, and religious institutions through directed field work, lectures and research. *(Spring)*

AAAS 2205. African Culture I. (3) Survey of lifestyles in Africa with emphasis on the patterns of social behavior and communal organization that link and relate to the African-American experience and heritage. Research required. *(Fall)*

AAAS 2206. African Literature, Music, and Art. (3) (W) Survey of African cultures through literature, music, drama, oral history, and art with emphasis on the cultural undertones that link and relate the African-American experience and heritage. Creative research or community projects required. *(Spring)*

AAAS 2207. Introduction to Pan-Africanism. (3) Interdisciplinary study of Pan-Africanism. Examination of historical and contemporary efforts of peoples of African descent to unite their struggles for human advancement and equality in the United States, Latin America, Western Europe, and Africa, including critical review of popular movements, leading proponents, and the significant organizational manifestations of Pan-Africanism. *(Alternate years)*

AAAS 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. *(Fall)*

AAAS 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. *(Yearly)*

AAAS 2221. Introduction to Contemporary Africa. (3) Study of Africa from 1960 to the present. Focus on political, economic, and social changes and Africa's integration into the community of nations. *(Fall)*

AAAS 2301. Introduction to African-American Literature. (3) Crosslisted as ENGL 2301. Prerequisite: ENGL 1101 and 1102 or 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 English Department. *(Fall, Spring)*

AAAS 3050. Topics in African-American and African Studies. (3) Treatment of a special topic. May be repeated for credit as topics vary, with approval of the Chairperson. *(Fall, Spring)*

AAAS 3101. Values in Racial Perspectives. (3) Study of values and make-up of American pluralistic society in historical and contemporary context. Focus on understanding of African-American values vis-a-vis those of majority society. *(Spring)*

AAAS 3150. Black Church/Civil Rights Movement. (3) Crosslisted as RELS 3150. Role of the black church in the struggle for human equality. Topics include radical, moderate, and accommodationist leadership styles; historical development of the black church in the South; and its

emergence as a foundation for the modern civil rights movement. *(Fall)*

AAAS 3179. African-American Political Philosophy. (3) Crosslisted as POLS 3172. Prerequisite: 3000 level course on Africa from AAAS, POLS, or HIST. Analysis of competing ideologies in African-American political philosophy. *(On demand)*

AAAS 3190. The Political Economy of the Caribbean. (3) An examination of the manifestations of Caribbean economic problems and policies and Caribbean political development from the post-war period to the present. *(Fall)*

AAAS 3230. Poverty and Discrimination. (3) Economic roots of poverty and discrimination and the impact of anti-poverty and anti-discrimination laws on Black America. *(Spring)*

AAAS 3250. Political Economy of Black America. (3) Examines the problems and the issues influencing the development of the black economic base in the United States and its role in the American economy. *(Fall)*

AAAS 3265. African Economic Development. (3) Focus on economic theories, planning, production, and resource allocation strategies, capital formation, foreign aid, and multinational corporations in Africa. *(Yearly)*

AAAS 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. *(Fall, Spring)*

AAAS 3601. Senior Seminar. (3) Prerequisite: completion of junior-year courses. Corequisite: AAAS 3990. Reading, discussion, reports. Peer critique of conceptualization, methodology and research of Senior Project. May be repeated for credit with consent of Advisory Committee. *(Fall, Spring)*

AAAS 3692. Colloquium. (3) (W) Prerequisite: Consent of the instructor. A weekly colloquium; research and writing; opportunity for intellectual stimulation, critique and problem solving. Open to majors and non-majors. *(Fall, Spring)*

AAAS 3895. Independent Study. (1-3) Prerequisite: Consent of the Department. Supervised investigation of a problem or subject in the area of African-American and African Studies. Majors only. May be repeated for credit. *(Fall, Spring)*

AAAS 3990. Senior Project. (2-15) Prerequisite: completion of junior-year courses. Corequisite: AAAS 3601. The writing of a senior research paper or work on a community-related project. Emphasis on mastery of skills and content of the discipline. (May be repeated twice for credit with instructor's consent.) *(Fall, Spring)*

AAAS 4101. Modern African Literature in English. (3) Prerequisite: junior standing; AAAS 1100 or 2206 for AAAS majors. Topics included: traditional African and Western literary influences, the culture debate, post-independence satire, decolonization of African literature, apartheid, and women writers. *(On demand)*

AAAS 4102. Caribbean Literature in English. (3) Prerequisite: junior standing; at least one course in AAAS

for AAAS majors. Topics include: loneliness, quest for identity, nationalism, protest, and the use of patois. *(On demand)*

AAAS 4103. Warfare, the Military, and Civil Wars in Africa. (3) Prerequisite: 3000 or above course on Africa. Nature and conduct of warfare in ancient and modern times in Africa, including technology and strategy; analysis of events and institutions using military means such as civil wars, liberation and secession movements, the army, and their impact on African societies. *(On demand)*

AAAS 4105. Foreign Policy of African States. (3) Crosslisted as POLS 3169. Prerequisite: upper-level course on Africa. A theoretical approach to the study of the external and internal factors influencing the development, implementation, and conduct of foreign policy of African States. *(Spring)*

AAAS 4106. Gender and African-American Literature. (3) Crosslisted as ENGL 4156. Prerequisites: ENGL 2100 and 2301, or permission of instructor or graduate status. 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. *(Alternate years)*

AAAS 4107. African-American Poetry. (3) Crosslisted as ENGL 4157. Prerequisites: ENGL 2100 and 2301, or permission of instructor or graduate status. Intensive study of African-American poetry, focusing on one period or traversing several. *(Alternate years)*

AAAS 4108. African-American Literary Theory and Criticism. (3) Crosslisted as AAAS 4158. Prerequisites: ENGL 2100 and 2301, or permission of instructor or graduate status. History of an African-American approach to literary analysis, including a practicum in modern criticism. *(Alternate years)*

ACCOUNTING (ACCT)

ACCT 2121. Principles of Accounting I. (3) Prerequisite: sophomore standing or consent of Department. Fundamental accounting principles, with emphasis on the use of financial accounting data and analysis of financial statements. *(Fall, Spring, Summer) (Evenings)*

ACCT 2122. Principles of Accounting II. (3) Prerequisite: ACCT 2121 with a **grade of C or better** and sophomore standing or consent of Department. An introduction to managerial accounting with an emphasis on using accounting information to make decisions. *(Fall, Spring, Summer) (Evenings)*

ACCT 3311. Intermediate Financial Accounting I. (3) Prerequisites: grades of C or better in both ACCT 2122 and INFO 2130. Analysis of the financial reporting requirements of corporations with emphasis on the conceptual framework and accounting for assets. Enrollment limited to majors in the College of Business. *(Fall, Summer) (Evenings)*

ACCT 3312. Intermediate Financial Accounting II. (3) Prerequisite: ACCT 3311 with a grade of C or better. A continuation of ACCT 3311 with emphasis on financial reporting for liabilities and stockholders equity. Also a

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number of special topics including the accounting for investments and the statement of cash flows. Enrollment limited to majors in the College of Business. (*Spring, Summer*) (*Evenings*)

ACCT 3330. Managerial Cost Accounting. (3) Prerequisite: ACCT 2122. Analysis of the uses of accounting data in the planning, controlling and decision-making processes of business enterprises. Enrollment limited to majors in the College of Business. (*Spring*) (*Evenings*)

ACCT 3340. Accounting Information Systems. (3) Prerequisites: ACCT 2122 and INFO 2130. An introduction to accounting systems, with particular emphasis on internal controls and computer auditing techniques. Enrollment limited to majors in the College of Business. (*Fall*) (*Evenings*)

ACCT 3350. Introduction to Auditing. (3) Co/Prerequisites: ACCT 3311 with a grade of C or better and ACCT 3340. This course 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. Enrollment limited to Accounting majors. (*Fall*) (*Evenings*)

ACCT 3400. Accounting Internship. (3) Prerequisite: Junior or Senior accounting major in good standing, with completion of **ACCT 3312** with a grade of C or better. Requires consent of the 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. The student works full-time during the period of internship, therefore the student should plan schedules for junior and senior years to accommodate the internship. Internship proposals may be initiated by the student or by the Department. The student 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. Report on the internship experience is required from both the student and the employer at the conclusion of the internship. Graded on Pass/No Credit basis. Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit. A student who is employed when applying for an accounting internship may not earn internship credit through work for the current employer. (*Fall, Spring, Summer*)

ACCT 3500. Cooperative Education or 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 position during each semester they are working in a position. Participating students pay a 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. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For information, contact the University Career Center. (*Fall, Spring, Summer*)

ACCT 3900. Current Developments in Accounting. (1-3) May be repeated for credit. Prerequisite: consent of the

Department. A research project will be required. Topics will be selected from internal and external auditing, governmental accounting, income taxes, managerial accounting and accounting theory. (*Fall, Spring, Summer*) (*Evenings*)

ACCT 4220. Income Tax. (3) Prerequisite: ACCT 3311 with a grade of C or better. An introduction to the Federal income tax system with emphasis on concepts and procedures applicable to all types of entities. Enrollment limited to Accounting majors. (*Fall*) (*Evenings*)

ACCT 4230. Advanced Income Tax. (3) Prerequisite: ACCT 4220 or equivalent course with a grade of C or better. 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. (*Fall, Spring*) (*Evenings*)

AEROSPACE STUDIES (AERO)

AERO 1101. The Air Force Today. (1) Pre-professional corequisite: AERO 1101L. Survey of topics relating to the Air Force including officership, professionalism, and basic communicative skills. (*Fall*)

AERO 1101L. The Air Force Today. (0) Leadership Lab. (*Fall*)

AERO 1102. The Air Force Today. (1) Pre-professional 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. (*Spring*)

AERO 1102L. The Air Force Today. (0) Leadership Lab. (*Spring*)

AERO 2101. Development of Air Power I. (1) Pre-professional 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. (*Fall*)

AERO 2101L. Development of Air Power I. (0) Leadership Lab. (*Fall*)

AERO 2102. Development of Air Power II. (1) Pre-professional 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. (*Spring*)

AERO 2102L. Development of Air Power II. (0) Leadership Lab. (*Spring*)

AERO 3101. Leadership and Management. (3) Pre-professional 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 written and oral communication. (*Fall*)

AERO 3101L. Leadership and Management. (0) Leadership Lab. *(Fall)*

AERO 3102. Defense Administration and Military Management. (3) Pre-professional corequisite: AERO 3102L. Examination of Air Force doctrine, leadership, and ethics. Emphasis is placed on written and oral communication. *(Spring)*

AERO 3102L. Defense Administration and Military Management. (0) Leadership Lab. *(Spring)*

AERO 3201. National Security Issues in Contemporary American Society. (3) Pre-professional 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. *(Fall)*

AERO 3201L. National Security Issues in Contemporary American Society. (0) Leadership Lab. *(Fall)*

AERO 3202. The Defense Leader: Perspectives on Ethics and Justice. (3) Pre-professional 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. *(Spring)*

AERO 3202L. The Defense Leader: Perspectives on Ethics and Justice. (0) Leadership Lab. *(Spring)*

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 permission of the student's advisor as topics vary. *(Fall, Spring) (Evenings)*

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. *(On demand)*

AMST 3000. 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 permission of the student's advisor as topics vary. *(Fall, Spring) (Evenings)*

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 permission of the student's advisor as topics vary. *(Fall, Spring) (Evenings)*

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 permission of the student's advisor as topics vary. *(Fall, Spring) (Evenings)*

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. *(Fall, Spring) (Evenings)*

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. *(On demand)*

AMST 3800. Independent Study or Directed Reading in American Studies. (3) May be repeated once for credit, with permission of the student's advisor. (Not limited to American Studies students but should be under the supervision of an American Studies advisor or designate.) *(On demand)*

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 permission of the student's advisor as topics vary. *(Fall, Spring) (Evenings)*

ANTHROPOLOGY (ANTH)

ANTH 1101. Introduction to Anthropology. (3) Biological and cultural evolution; archeology; language and culture; comparative study of human social institutions such as kinship, subsistence patterns, religion, politics; methods, and theories. Prerequisite for all upper-level courses in anthropology. *(Fall, Spring, Summer) (Evenings)*

ANTH 2010. Topics in Ethnography. (3) Investigation of ethnographic regions of the world. May be repeated for credit as topics vary. Examples: Cultures of the Pacific; Cultures of the Mediterranean. *(On demand)*

ANTH 2050. Topics in Archaeology. (3) Specialized topics in archaeology. May be repeated for credit as topics vary. Examples: Historic Archaeology. *(On demand)*

ANTH 2090. Topics in Anthropology. (1-3) Specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Hunters and Gatherers; Political Anthropology. *(On demand)*

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. *(On demand)*

ANTH 2112. North American Indians. (3) Survey of the

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native peoples of America; culture at the time of European contact; major historical events and relationships; contemporary issues in Indian affairs. (*On demand*)

ANTH 2113. Cultures of Russia and East Europe. (3)
Prerequisites: None. 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. (*Alternate Years*)

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. (*On demand*)

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. (*Alternate years*)

ANTH 2116. Contemporary Latin America. (3) (W)
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. (*Alternate years*)

ANTH 2117. Cultures of the Caribbean. (3)
Prerequisites: None. An introduction to society and culture in the Caribbean region. Areas of investigation include ethnicity, nationalism, family and community structure, economy, religion, and politics. (*Fall*)

ANTH 2121. Comparative Family Systems. (3) (W)
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. (*On demand*)

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. (*Yearly*)

ANTH 2123. Women in Cross Cultural Perspective (3)
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. (*Alternate years*)

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. (*On demand*)

ANTH 2126. World Population Problems. (3) (W)
Crosslisted as SOCY 2126. Prerequisites: None. 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. (*Alternate Years*)

ANTH 2141. Principles of Biological Anthropology. (4)
Evolutionary theory; primates; primate and human evolution; population genetics; human variation, osteology; bioethics. Three lecture hours and two lab hours each week. (*Fall, Spring*)

ANTH 2142. Primate Behavior. (3)
Primate evolution, taxonomy, social behavior, ecology, reproductive strategies; monkeys, apes and human beings; communication, aggression, mother-infant bonding, sociobiology; field-work, conservation. (*On demand*)

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 archeology. (*Fall*)

ANTH 2152. New World Archaeology. (3)
Prehistory of North America; Paleoindians, Eastern United States, Southwest, Mexico; archaeological methods and theory. (*Spring*)

ANTH 3090. Topics in Anthropology. (1-3)
Prerequisite: ANTH 1101 or consent of the instructor. Examination of specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Anthropological Genetics, Ecological Anthropology. (*On demand*)

ANTH 3101. Foundations of Anthropological Theory. (3)
Prerequisites: ANTH 1101 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. (*Fall*)

ANTH 3111. Applied Anthropology. (3)
Prerequisite: ANTH 1101 or consent of instructor. Cultural dynamics; agents and conditions promoting change; theories and methods of applied anthropology in health care, education, development, business. (*On demand*)

ANTH 3113. Economic Anthropology. (3)
Prerequisites: ANTH 1101 or ECON 1101 or ECON 2102 or permission of the instructor. Intellectual roots of anthropological approaches to economy, formalist-substantivist debate, distribution and exchange, commodities, consumption, and material culture. (*Alternate Years*)

ANTH 3122. Culture, Health and Disease. (3) (W)
Prerequisite: ANTH 1101 or consent of the Department. 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. (*Yearly*)

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. (*Yearly*)

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. *(On demand)*

ANTH 3140. Forensic Anthropology. (3) Comparative human anatomy and biological anthropology applied to modern problems in the identification of human remains. Recovery, identification, and interpretation of human remains from archaeological, criminal, and disaster investigations. *(On demand)*

ANTH 3152. Early Civilizations. (3) Prerequisite: ANTH 1101 or 2151 or consent 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; archeological theory and method, environment, and ecology of first civilizations. *(Alternate years)*

ANTH 3153. Archaeological Analysis. (3) Prerequisite: ANTH 2151 or consent of the instructor. Advanced study of archaeological method and theory; analytical methods; statistics in archeology. *(On demand)*

ANTH 3154. European Prehistory. (3) Prerequisite: ANTH 1101 or 2151 or consent of the instructor. Prehistory of Europe; Paleolithic, Neolithic, Bronze Age, Iron Age; archeological methods and theory; ecology and social systems of early European cultures. *(On demand)*

ANTH 3155. Ancient Latin America. (3) Prerequisites: none. Archeology 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. *(Yearly)*

ANTH 3453. Field Projects in Archaeology. (1-4) Prerequisite: ANTH 1101 or 2151 and consent of the instructor. (Credit hours will be established by instructor prior to the field project.) Practical experience in archaeological techniques. Students will participate in field research on an historic or prehistoric archeological 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 as projects vary. Up to eight hours of credit may be applied toward the anthropology major. *(Summer)*

ANTH 3480. Internship in Anthropology. (3) Prerequisite: consent of the Department. Research and/or in-service training experience in a cooperating community organization, based upon a contractual agreement between the student, Department, and community organization. May be repeated for credit up to a maximum of six semester hours. *(Pass/No Credit basis) (Fall, Spring, Summer)*

ANTH 3482. Teaching Internship in Anthropology. (3) Prerequisite: at least junior standing and permission of the 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 six hours. *(Honors/Pass/No credit) (Fall, Spring)*

ANTH 3895. Directed Individual Study. (1-4) Prerequisite: ANTH 1101 and consent of the Department. Supervised investigation of specialized topics in anthropology. May be repeated for credit: up to six hours may be applied to the major. *(Fall, Spring, Summer)*

ANTH 4090. Topics in Anthropology. (1-3) Prerequisite: ANTH 1101 or consent of instructor. Examination of specialized topics in anthropology. May be repeated for credit as topics vary. Examples: Anthropology and Globalism; Race, Culture, and Society. *(On demand)*

ANTH 4110. American Ethnic Cultures. (3) Prerequisite: ANTH 1101 or consent 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. *(On demand)*

ANTH 4120. Intercultural Communications. (3) Prerequisite: ANTH 1101 or consent 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. *(On demand)*

ANTH 4122. Ethnographic Methods. (3) Prerequisites: At least 6 hours in ANTH courses or permission of the instructor. This course provides students with a basic mastery of the key methods used in cultural anthropological research. *(Alternate Years)*

ANTH 4501. Honors Research in Anthropology. (3) Prerequisite: Acceptance into the departmental honors program and permission of the department. Independent Honors project; proposal, literature review, and research for project to be completed in ANTH 4601. *(Honors/Pass/No Credit)*

ANTH 4601. Seminar in General Anthropology. (3) (W) (O) Prerequisite: ANTH 3101 and senior standing. For majors only. Synthesis and integration of subfields of anthropology with emphasis on accomplishing original research, and written and oral presentation in anthropology. (O credit will be received only after successful completion of 3101 and 3601) *(Spring)*

ANTH 4616. Culture and Conflict in the Amazon. (3) Prerequisite: None. This course 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. *(On demand)*

ARCHITECTURE (ARCH)

Studio and Seminar Courses

ARCH 1101. Architecture Design Studio- (5) This course begins the architectural design sequence. The studio allows students to gain a working knowledge of important studio skills, processes and methods, and develop creative and

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independent thinking through two-and three-dimensional design problems. *(Fall)*

ARCH 1102. Architecture Design Studio. (5) This course continues the architectural design studio sequence, expanding the base of architectural skills, processes, methods, principles, and issues which affect the built environment we inhabit. Design is introduced as a conceptual discipline involving analysis, interpretation, syntheses, and transformation of the physical environment. *(Spring)*

ARCH 1601. Recording Observations. (2) 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. *(Fall)*

ARCH 1602. Components of Form. (2) 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. *(Spring)*

ARCH 2101. Architecture Design. (5) Prerequisites: ARCH 1102 and 1602. Corequisite: ARCH 2601. Studios emphasizing the significant purposes for building; understanding the theoretical, technical and symbolic consideration of the environment relative to intervention, and intentions from behavioral information toward a comprehensive design process. *(Fall)*

ARCH 2102. Architectural Design Studio. (5) Prerequisites: ARCH 2101 and 2601. Studios concentrating on the development, experimentation, and understanding of the range, potential, materials, systems, and methods in the use of architectural technologies. *(Spring)*

ARCH 2601. Architectural Seminar. (3) (W) Prerequisites: ARCH 1602 and 1102. Corequisite: ARCH 2101. This seminar introduces models of design process to build judgmental capacity in the areas of function, spatial organization, culture, and landscape. Site planning is presented both as a technical demand and a formal device. Lectures, demonstrations, and design workshops are used to build skill. *(Fall)*

ARCH 3101. Architecture Design Studio. (5) Prerequisites: ARCH 2102. Third year design studios continue the five-year studio sequence with a focus on three areas of inquiry: *tectonics* - defined as the material, detail, and structure as form-generating influences; *enclosure* - defined as making space with regard to use and human ritual; and *envelope* - defined as building edge and surface in technical terms and signification. *(Fall)*

ARCH 3102. Architecture Design Studio. (5) Prerequisite: ARCH 3101. Continuation of ARCH 3101. The final studio in the Core Program examines the relationship of building to site and context in both environmental and social terms. Site planning, adjacency, contextualism, land and landscape, building grouping, and urban occupancy are included in projects. *(Spring)*

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. *(Fall, Spring)*

ARCH 4101. Topical Architectural Studio. (5) Prerequisite: ARCH 3102. Various studio topics are offered with different emphasis and subject concentration to allow students to in-depth studio experiences in particular areas of study. *(Fall)*

ARCH 4102. Topical Architectural Studio. (5) Prerequisite: ARCH 4101. Series of studio sections offered with different emphasis and subject concentration to allow students to obtain a variety of studio experiences and pursue an individual area of study. *(Spring)*

ARCH 4103. Project Document. (6) Completion of a Project Document which provides for design research, analysis, development and synthesis (oral, written, and graphics) of a building program, site, and design premise. *(Fall)*

ARCH 4104. Thesis Studio. (6) Completion of a Comprehensive Architectural Project design including oral and visual presentation of design development, final project design, and refinement of Project Document. (See ARCH 4103) *(Spring)*

ARCH 4112. Professional Practice. (3) Co-requisite: 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. *(Spring)*

ARCH 4211. Architectural History 1. (3) Study of the theoretical, technical, and cultural background of architecture and urban design from prehistory to 1750. *(Fall)*

ARCH 4212. Architectural History 2. (3) Study of the theoretical, technical, and cultural background of architecture and urban design from 1750 to present. *(Spring)*

ARCH 4213. Architectural History Elective. (3) Prerequisite: ARCH 4212 or permission of instructor. Study of topical areas of history and theory of architecture. These courses are required for architecture majors (6 credit hours) to complement the required survey courses (ARCH 4211 and 4212) to develop in-depth research, writing, and presentation skills. *(Fall)*

ARCH 4214. Architectural History Elective. (3) Prerequisite: ARCH 4212 or permission of instructor. Study of topical areas of history and theory of architecture. These courses are required for architecture majors (6 credit hours) to complement the required survey courses (ARCH 4211 and 4212) to develop in-depth research, writing, and presentation skills. *(Spring)*

ARCH 4312. Architectural Materials. (3) Introduces quantitative and qualitative characteristics and physical properties of architectural materials, systems, details and processes. Topics include masonry, concrete, wood, steel, glazing, cladding, roofing and flooring materials, and assemblies. *(Spring)*

ARCH 4313. Structures 1. (3) Prerequisite: ARCH 4312. Introduces: 1) the fundamentals of structures including statics, strength and stability of materials, 2) structural

concepts, systems, and the tracing of structural loads using basic principles, physical modeling, and theoretical and analytical methods, 3) the interrelationship between strain, stress, and stability, and the implications of tension, compression, shear, torsion, and bending. *(Fall)*

ARCH 4314. Structures 2. (3) Prerequisites: ARCH 4312 & 4313. This course introduces specific structural applications of wood, steel, concrete, and masonry systems commonly used in small-scale commercial/institutional buildings. Students will be introduced to the design of beams, columns, walls, joinery, and connections appropriate to each material type through theoretical, analytical, and computer simulation methods. *(Spring)*

ARCH 4315. Environmental Control Systems. (3) Prerequisites: ARCH 4312. Introduces: 1) qualitative and quantitative methods to assess the impact of environmental forces on thermal and luminous comfort, energy performance, and regional sustainability; 2) the interplay between climatic events, building use, and the variables that influence building systems technology; and 3) building envelope performance, and passive and mechanical systems for heating, cooling, illuminating, and ventilating. *(Fall)*

ARCH 4317. Building Systems Integration. (3) Introduces advanced issues related to the comprehensive integration of building technology systems commonly used in large-scale buildings including large-scale building structures, materials, environmental, mechanical, electrical, life safety, building water supply and waste, and conveying systems through case study, analytical, and simulation methods. *(Fall)*

ARCH 4890. Directed Independent Study. (1-3) Prerequisite: major in Architecture. This course is designed to allow students to pursue faculty-directed independent study topics not provided by other College offerings. May be repeated for credit with the approval of the College. Requires permission from Chair of Instruction. *(Fall, Spring)*

ARTS AND SCIENCES (ARSC)

ARSC 1000. Freshman Seminar. (3) Designed to assist with the intellectual and social transition from high school to college by developing positive attitudes toward learning 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. Each section will be developed around a content theme, usually selected from the instructor's discipline. *(Fall)*

ARSC 1101. "Advantage: Connecting with College." (3) (W) is a summer program for college freshmen. During this program, students take two courses and earn six credit hours. The morning course is an elective chosen from a list of specially selected Department courses. The afternoon is ARSC 1101, Connecting with College. All sections work from a common syllabus. All Advantage courses, both the morning and afternoon courses, meet for the required number of 45 contact hours. *(Summer)*

ARSC 2000. University Learning Seminar. (1-3) Prerequisite: Consent of the College of Arts and Science. Provides instruction in basic computer literacy, critical thinking skills, reading comprehension, written and oral

communication skills. Each section will be developed around a content theme selected from instructor's discipline. Designed for transfer students in making intellectual and social transition to the University learning environment. Students who have previously taken ARSC 1000 may not receive credit for this course. *(Fall, Spring)*

ARSC 3000. Topics in Arts and Sciences. (3) Prerequisites: junior standing and consent 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 as topics vary with consent of the student's major Department. Can be used toward general degree requirements as indicated each time the course is offered. *(On demand)*

ARSC 3201. Instructional Technology Design. (3) Prerequisite: Sophomore standing, application of technology skills and permission from instructor. Area of study will focus on instructional design, web page development, electronic presentation and technology solutions. Students in this course will work closely with the faculty on instructional technology projects. *(Fall, Spring)*

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. *(On demand)*

ARSC 3480. Citizenship and Service Practicum. (3) (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. *(Fall, Spring, Summer)*

ARSC 3500. Cooperative Education or 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 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For information, contact the University Career Center. *(Fall, Spring, Summer)*

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ART

Course offerings are listed by number within area of study.

Academic and Departmental Art

ARTA 2800. Directed Studies in Art. (1-3) Prerequisite: Consent of instructor and department. Directed individual research in a particular artistic field of interest not otherwise offered. May be repeated for credit. *(Fall, Spring, Summer)*

ARTA 3000. Topics in Art. (1-3) Special topic in art. May be repeated for credit with change in topic. *(On demand)*

ARTA 3101. Art Writing. (3) (W) Crosslisted as JOUR 3050. Prerequisite: Consent of instructor for non-majors. Priority for Art and Architecture majors. Intensive writing experience in the forms of writing commonly employed in the visual arts: criticism, journalism, historical research, personal essay. *(On demand)*

ARTA 3201. Graphic Design & Illustration BFA Portfolio Review. (1) Prerequisites: ARTH 1211, ARTH 1212, ARTB 1201, ARTB 1202, ARTB 1203, completion of or concurrent enrollment in ARTB 1205 and ARTB 1206, and completion of ARTG 2181 or ARTL 2186, depending on concentration. Six seminar style classes provide guidance with written statements, documentation of artwork and presentation format. Guest speakers present information related to the portfolio packet, eventual career paths and exhibition issues. Portfolio is due during the seventh week of the semester. *(Pass/NoCredit) (Fall, Spring)*

ARTA 3202. 2D BFA Portfolio Review. (1) Prerequisites: ARTA 1211, ARTA 1212, ARTB 1201, ARTB 1202, ARTB 1230, completion of or concurrent enrollment in ARTB 1205 and ARTB 1206, and at least three hours completed in beginning level class of proposed concentration. Six seminar style classes provide guidance with written statements, documentation of artwork and presentation format. Guest speakers present information related to the portfolio packet, eventual career paths and exhibition issues. Portfolio is due during the seventh week of the semester. *(Pass/No Credit) (Fall, Spring)*

ARTA 3203. 3D BFA Portfolio Review. (1) Prerequisites: ARTA 1211, ARTA 1212, ARTB 1201, ARTB 1202, ARTB 1203, completion of or concurrent enrollment in ARTB 1205 and ARTB 1206, and at least three hours completed in beginning level class of proposed concentration. Six semester style classes provide guidance with written statements, documentation of artwork and presentation format. Guest speakers present information related to the portfolio packet, eventual career paths and exhibition issues. Portfolio is due during the seventh week of the semester. *(Pass/No Credit) (Fall, Spring)*

ARTA 3400. Internship in the Arts. (1-3) Prerequisite: Consent of sponsor and instructor. 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. Six to twelve hours per week. Repeat for credit with different

sponsors. *(Pass/No Credit grade evaluation) (Fall, Spring, Summer)*

ARTA 3402. Gallery Internship. (3) Participation in all phases of exhibition selection, preparation, and presentation in four campus galleries under supervision of campus galleries coordinator. An average of eight hours per week for a total of 120 hours. May be repeated one time for credit. *(Fall, Spring)*

ARTA 4600. Senior Seminar. (3) (W) (O) Prerequisite: 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. *(Fall, Spring)*

ARTA 3800. Independent Study in Art. (1-3) Prerequisite: consent of instructor and department. Supervised individual research of artistic problems with appropriate documentation of the results. May be repeated for credit. *(Fall, Spring, Summer)*

ARTA 3801. Visual Arts Workshop. (1-6) Prerequisite: Consent of instructor. 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. *(Fall, Spring, Summer)*

ARTA 4601. BFA Senior Exhibit. (1) Prerequisites: Senior status, ARTA 3201, 3202, or 3203, concurrently enrolled in the final Projects class in the concentration. BFA candidates will prepare, install, and exhibit a body of work to fulfill BFA exit requirement. *(Pass/No Credit) (Fall, Spring)*

Basic Foundation Studios

ARTB 1201. 2D Design. (3) The two-dimensional surface and its structural possibilities (i.e., graphics, photography, painting); elements of plastic expression related to increased complexity of space and form. Priority for majors. Six hours. *(Fall, Spring)*

ARTB 1202. 3D Design. (3) A beginning studio emphasizing experimentation with design and materials as related to the exploration of form and space in three dimensions. Priority for majors. Six hours. *(Fall, Spring)*

ARTB 1203. Drawing I. (3) Introduction to drawing involving skills and theory including perspective, proportion, and rendering in a variety of media and techniques. Priority for majors. Six hours. *(Fall, Spring)*

ARTB 1205. Figure Drawing I. (3) Prerequisite: ARTB 1203 or consent of instructor. The figure as it relates to form, contour, and movement; an anatomical study emphasizing the relationships of skeletal and muscle organization and other referents in the development of graphic skills and vocabulary. Six hours. *(Fall, Spring)*

ARTB 1206. Concept Studio. (3) Introduction to: 1.) critical and creative thinking and its application to visual art; 2.) historical changes in the way cultures see, think, and produce; 3.) the breadth of contemporary art practice. Four contact hours. *(Fall, Spring)*

Ceramics

ARTC 2171. Ceramics Handbuilding. (3) Introduction to handbuilt forming methods, concept development, ceramic materials, and firing procedures. Six hours. *(Fall, Spring)*

ARTC 2172. Ceramics Wheel 1. (3) Introduction to wheel forming methods and emphasis on skill development, design, glaze application, utilitarian and sculptural concepts, and basic high-fire techniques. Six hours. *(Fall, Spring)*

ARTC 3071. Topics in Ceramics. (1-3) Special topics in ceramics. May be repeated for credit with change in topic. *(On demand)*

ARTC 3171. Ceramic Sculpture. (3) Prerequisite: ARTC 2171 or consent of instructor. Intermediate studio emphasizing sculptural techniques, concepts, and design. Six hours. *(Fall, Spring)*

ARTC 3172. Ceramics Wheel 2. (3) Prerequisites: ARTC 2172 or consent of instructor. Continuation of ARTC 2172 emphasizing development of skills, materials, high temperature firing techniques, design concepts related to utility and sculpture. Six contact hours. *(Fall, Spring)*

ARTC 3273. Ceramics 3. (3) Prerequisites: Choose two of the following in sequence: ARTC 2171 and ARTC 3171 or ARTC 2172 and ARTC 3172. Intermediate development of skills and concepts. More advanced materials and firing techniques. Six contact hours. *(Fall, Spring)*

ARTC 3274. Ceramics 4. (3) Prerequisite: ARTC 3273 and ARTA 3203. Continuation of ARTC 3273. Six contact hours. *(Fall, Spring)*

ARTC 4175. Ceramics 5. (3) Prerequisite: ARTC 3274. 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. *(Fall, Spring)*

ARTC 4971. Ceramics Projects 1. (3) Prerequisites: ARTC 4175 and ARTA 3203, or consent of instructor. 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. *(Fall, Spring)*

ARTC 4972. Ceramic Projects 2. (3) Prerequisite: ARTC 4971; corequisite: ARTA 4601. Continuation of ARTC 4971 culminating in a body of original ceramic art in preparation for BFA Senior Exhibition. Six contact hours. *(Fall, Spring)*

Art Education

ARTE 1121: Introduction to Art Education. (1) Introduction to the field of art education, with exploration in learning theories, lesson planning and assessment, and studio projects appropriate for teaching K-12 students. Lecture/Lab course. *(On demand)*

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. Six hours. For non-majors only. *(Fall, Spring, Summer)*

ARTE 3467. Student Teaching in Art. (15) Prerequisites: ARTE 4122 and approved application for student teaching; senior status; completion of professional education requirements; grades of C or better in all courses required for licensure. Co-requisite: 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. The student must demonstrate the competencies identified for his/her specific teaching filed in an appropriate grade level setting. *(Fall, Spring)*

ARTE 4021. Topics in Art Education. (1-3) Special topics in art education. May be repeated for credit with change in topic. *(On demand)*

ARTE 4121. Art Education Methods 1 (K-12). (3) Prerequisites: Formal admission to Art Education program. This course should be taken two semesters prior to proposed student teaching experience. Analysis of learning theories as related to growth and development in visual arts; organization of tools; media and materials; curriculum design in planning art units and lesson plans; evaluation and motivation techniques. Studio course. Six hours. *(Fall, Spring)*

ARTE 4122. Art Education Methods 2 (K-12). (3) Prerequisites: ARTE 4121, formal admission to Art Teacher Education program. Development of objectives for art education based on personal and historical references, philosophy, and psychology. Relationship of the arts and artists to contemporary society. Curriculum design and classroom management. Six hours. *(Fall, Spring)*

Fibers

ARTF 2151. Fibers 1. (3) Introduction to the field of fibers, with exploration in constructed fibers, garment forms, and surface design, including weaving, dying, printing, and three dimensional construction techniques. Six contact hours. *(Fall, Spring)*

ARTF 2255. Tapestry. (3) Prerequisite: ARTF 2151 and ARTB 1202 or consent of instructor. Tapestry techniques concentrating on color and design. May be repeated for credit. Six hours. *(On demand)*

ARTF 2256. Rug Weaving. (3) Prerequisite: ARTF 2151 and ARTB 1202 or consent of instructor. Technical study including warp-faced and weft-faced rugs, pile, and flat woven surfaces. May be repeated for credit. Six hours. *(On demand)*

ARTF 3051. Topics in Fibers. (1-3) Special Topics in fibers. May be repeated for credit with change in topic. *(On demand)*

ARTF 3352. Fibers 2: Surface Design. (3) Prerequisites: ARTF 2151 and ARTB 1202 or consent of instructor. 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. *(Spring) (Alternate years)*

ARTF 3353. Fibers 3: Loom Weaving. (3) Prerequisites: ARTF 2151 and ARTB 1202 or consent of instructor. Exploration of four-harness loom weaving including plain,

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twill, overshot, lace and double weaves. Six contact hours. *(Fall) (Alternate years)*

ARTF 3354. Fibers 4: Non-Loom Constructions. (3) Prerequisites: ARTF 2151, ARTA 3203 and ARTB 1202 or consent of instructor. Continuation of development of skills and concepts in fiber, focusing on non-loom constructions such as coiling, twining, netting and garment forms. Six contact hours. *(Spring) (Alternate years)*

ARTF 3255. Book Arts & Papermaking. (3) An introduction to book art forms including hand-sewn Western Codex, Japanese binding, accordion pleats, and others. Students will create a portfolio of hand made papers using abaca and other fibers, and explore three-dimensional paper forms. Six contact hours. *(Summer, Alternate Years) (On demand)*

ARTF 4951: Fibers Projects 1. (3) Prerequisites: 12 credits of fibers courses and ARTA3203 or consent of instructor. Advanced level fiber techniques and concepts with emphasis on personal expression and development of individual fiber portfolio. Six contact hours. *(Fall, Spring)*

ARTF 4952. Fibers Projects 2. (3) Prerequisites: ARTF 4951; Co-requisite: ARTA 4601 or consent of instructor. Emphasis on portfolio development, professional practices specific to the fiber field and preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

Graphic Design

ARTG 2181. Graphic Design 1. (3) Prerequisites: ARTB 1201 and ARTB 1203. 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. *(Fall, Spring)*

ARTG 3081. Topics in Graphic Design. (1-3) Prerequisite: ARTG 2181 and consent of instructor. Special topics in graphic design. May be repeated for credit with change in topic. *(On demand)*

ARTG 3183. Graphic Design 2. (3) Prerequisites: ARTM 2105 and ARTG 2181. 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. *(Fall, Spring)*

ARTG 3184. Typography. (3) Prerequisite: ARTG 3183. 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. *(Fall, Spring)*

ARTG 3287. Exhibition Design. (3) Prerequisites: ARTG 2181 and ARTG 3183. Theory, interpretation, design, and fabrication of exhibitions for museums, galleries, and other cultural, corporate, educational, and public use. Six hours. *(Spring) (Alternate years)*

ARTG 3408. Graphic Design Internship. (3) Prerequisite: ARTA 3201; ARTG 3184; and consent of instructor, department, and sponsor. Placement in a professional setting

for observation and supervised design-related duties. An average of ten hours per week for twelve weeks for a total of 120 hours. Written documentation of internship required. *(Pass/No Credit) (Fall, Spring, Summer)*

ARTG 4982. Graphic Design Projects. (3) Prerequisites: ARTG 4181 and ARTA 3201; 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. *(Fall, Spring)*

Art History

ARTH 1211. Art History Survey I. (3) Survey of Western art from prehistory to the Gothic period, focusing on the functions and meanings of individual works of art, visual culture, and art history as a discipline. Lecture course, objective exams. *(Fall)*

ARTH 1212. Art History Survey II. (3) Survey of western art from late Gothic period to the present, focusing on the functions and meanings of individual works of art, visual culture, and art history as a discipline. Lecture course, objective exams. *(Spring)*

ARTH 2112. Asian Art. (3) Survey of Indic, Chinese, and Japanese art with special emphasis upon the art as the illustration of religious, philosophical, and political ideals. Discussions of readings, lectures, slides, and video tapes. Essay exams. *(Fall)*

ARTH 2113. Art of Indigenous Peoples. (3) Survey of Pre-Columbian and Native American art, Africa, and Oceania with special emphasis upon the art as the illustration of religious, philosophical, and political ideals. Discussion of readings, lectures, slides, and video tapes. Essay exams. *(On demand)*

ARTH 2210. Contemporary Art History. (3) Prerequisite: ARTH 1212 or consent of the instructor. History of primary art movements, artists, and visual culture from 1940 to the present, including theoretical and historical perspectives. *(Spring)*

ARTH 2219. History of Photography. (3) Survey of the major events and stylistic developments in photography from 1839 to the present. *(Spring)(Alternate years or on demand)*

ARTH 3001. Topics in Art History. (1-3) Special topics in art history. May be repeated for credit with change in topic. *(On demand)*

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. *(On demand)*

ARTH 3110. Art in the U.S. (3) Crosslisted as AMST 3050. Prerequisite: ARTH 1212 or consent of instructor. Survey of the major artists and movements in the United States from the Colonial period through 1940. The course combines lectures with discussions, tests, research, and

writing. *(Fall) (Alternate years)*

ARTH 3112. Pre-Columbian Art. (3) Survey of the arts and architecture of the Americas before European contact in the 16th 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. *(On demand)*

ARTH 3113. Medieval Art. (3) Prerequisite: ARTH 1211 or consent of instructor. Survey of the major movements in Europe and the Near East from 324-1400 C.E. with special emphasis on the philosophical background and the interrelationships among the arts of each period. Discussions of readings, lectures, slides, and video tapes. Essay exams. *(Spring) (Alternate years)*

ARTH 3119. 19th Century Art in Europe. (3) Prerequisite: ARTH 1212 or consent of instructor. Survey of the major artists and movements in 19th century in Europe, including discussions of cultural contexts and philosophical backgrounds of major artists and styles. *(Fall) (Alternate years)*

ARTH 3120. 20th Century Art in Europe. (3) Prerequisite: ARTH 1212 or consent of instructor. Survey of the major movements in 20th century modernist art in Europe from 1900-1945, with special emphasis on the cultural and philosophical backgrounds of major artists and styles. *(Spring) (Alternate years)*

ARTH 3210. Art History Methods. (3) Prerequisite: ARTH 1211 and 1212, or consent 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. *(Fall)*

ARTH 3214. Ancient Near Eastern & Egyptian Art. (3) Prerequisite: ARTH 1211 or consent 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. *(Fall) (Alternate Years)*

ARTH 3215. Ancient Greek and Roman Art. (3) Prerequisite: ARTH 1211 or consent of instructor. Survey of the arts and architecture of the Greeks, Etruscans, and Romans from c. 800 BCE - 400 CE. Reading and discussions focus on issues of ethnicity, gender, religion, and politics. *(Spring)*

ARTH 3300. Women in Art. (3) Crosslisted as WMST 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 class combines lectures with discussion, tests, research, and writing. *(On demand)*

ARTH 3310: Northern Renaissance Art. (3) Prerequisite: ARTH 1212 or consent of instructor. Survey of Netherlandish and German painting, printmaking, and sculpture of the Renaissance. Readings and discussions focus on religion, patronage, and the use of art in society. *(Fall)(Alternate Years)*

ARTH 3311: Italian Renaissance Art. (3) Prerequisite:

ARTH 1212 or consent 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. *(Spring)(Alternate Years)*

ARTH 3312: Northern Baroque Art. (3) Prerequisite: ARTH 1212 or consent of instructor. Survey of Northern European art from the 16th and 17th centuries. Readings and discussions focus on a variety of artistic genres and art's relationship to religion and politics. *(Spring)(Alternate Years)*

ARTH 3810: Independent Study in Art History. (1-3) Prerequisite: consent of instructor. Supervised individual investigation of art history topic with appropriate documentation of research results. May be repeated for credit. *(Fall, Spring)*

ARTH 4212. Contemporary Art Theory & Criticism. (3) Prerequisites: ARTH 3210 or consent of instructor. 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. *(Spring) (Alternate years)*

Illustration

ARTL 2186. Illustration I. (3) Prerequisites: ARTB 1201 and completed or concurrent ARTB 1205. 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 hours. *(Fall, Spring)*

ARTL 3086. Topics in Illustration. (1-3) Special topics in illustration. May be repeated for credit with change in topic. *(On demand)*

ARTL 3186. Illustration: Media/Method. (3) Prerequisites: ARTL 2186, co-requisite or completed ARTD 3134 and ARTD 2139 (Illustration concentrates); ARTL 2186 only (Graphic Design concentrates). Tools and techniques of illustration including preliminary sketching, photography, library, and Internet research. *(Fall)*

ARTL 3187. Children's Book Illustration. (3) Prerequisites: ARTA 3201 and ARTL 2186. 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 hours. *(Fall) (Alternate years)*

ARTL 3188. The Figure in Illustration. (3) Prerequisites: ARTA 3201, ARTD 2139, ARTD 3134, and ARTL 2186. Examination of memory and research techniques to draw the figure in any position or environment. Emphasis on anatomy, form, composition, and costume. Six hours. *(Fall) (Alternate years)*

ARTL 3286: Illustration Sequence/Story. (3) Prerequisites: ARTA 3201, ARTL 2186, ARTD 3134, and co-requisite or completed ARTD 2139 (Illustration concentrates); ARTL 2186 only (Graphic Design concentrates). Relationship between words and pictures. Development of a narrative pictorial approach in problems

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for a wide variety of markets. Single and sequential images as visual solutions. Six contact hours. *(Spring)*

ARTL 4981: Illustration Projects. (3) Prerequisites: ARTA 3201, ARTL 3186, and ARTL 3286; Co-requisite: 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. *(Spring)*

Multi-Media

ARTM 2105. Electronic Media. (3) Prerequisites: ARTB 1201 and 1203, or consent of instructor. Methods of digital and electronic production within a fine arts context, Macintosh hardware and software, an historical overview of electronic artists and artworks, and the Internet as a publishing and research tool. Six hours. *(Fall, Spring)*

ARTM 3005. Topics in Multi-media. (1-3) Special Topics in multi-media. May be repeated for credit with change in topic. *(On demand)*

ARTM 3103. Animation and Interactivity. (3) Prerequisites: ARTM 2105 or consent of instructor. Emphasis on the tools, techniques, and software used in the creation of interactive multimedia and animation, especially media creation for the Internet and CD-ROM. *(Fall, Spring)*

ARTM 3405. Internship in Electronic Media. (3) Prerequisites: ARTT 3105 or ARTT 3205 and consent of the instructor, department and sponsor. Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of an art organization, production house or other arts related business or expert craftsman dealing with electronic media. Sponsor and faculty supervised. Average of with hours per week for fifteen weeks for a total of 120 hours. *(Pass/No Credit) (On demand)*

Painting

ARTP 2131. Painting 1. (3) Prerequisite: ARTB 1201 and 1203 or consent of instructor. Beginning studio exploring basic theory and technique of painting using oil paints. Six contact hours. *(Fall, Spring)*

ARTP 3031. Topics in Painting. (1-3) Special topics in painting. May be repeated for credit with change in topic. *(On demand)*

ARTP 3131. Abstract Painting. (3) Prerequisite: ARTP 2131 or consent of instructor. 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. *(Fall)*

ARTP 3132. Figure in Painting. (3) Prerequisites: ARTP 2131 and completed or co-requisite ARTB 1205 or consent of instructor. Intermediate studio exploring the human form as a vehicle for artistic expression using oil and acrylic paints and mixed media. Six contact hours. *(Spring)*

ARTP 4931. Painting Projects 1. (3) Prerequisites: ARTP 3131, 3132, and ARTA 3202, or consent of instructor. Advanced studio exploring individual directions in painting

and preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

ARTP 4932. Painting Projects 2. (3) Prerequisite: ARTR 3161 and ARTP 4931 or consent of instructor. Advanced studio continuing exploration of individual directions in painting and preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

ARTP 4933: Painting Projects 3. (3) Prerequisites: ARTP 4932; 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. *(Fall, Spring)*

Printmaking and Drawing

ARTD 2139: Drawing 2. (3) Prerequisites: ARTB 1201 and ARTB 1203, or consent of instructor. 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. *(Spring)*

ARTD 3134. Figure & Anatomy. (3) Prerequisite: ARTB 1201 and ARTB 1205 or consent of instructor. Emphasizes the study of anatomy as it pertains to drawing. Complex drawing problems in a variety of media. Six contact hours. *(Fall, Spring)*

ARTD 3135. Expressive Drawing. (3) Prerequisites: ARTB 1205 and either ARTD 2139 or ARTR 2161 or consent of instructor. Intermediate studio exploring experimental, expressive, and conceptual approaches to drawing. Includes figurative and non-figurative representation as well as abstraction. Emphasis on personal imagination and personal imagery. Six contact hours. *(Spring)*

ARTR 2161. Lithography & Etching 1. (3) Prerequisites: ARTB 1201 and 1203 or consent of instructor. Beginning printmaking studio. Introduction to lithographic techniques of drawing and hand printing from stones and digital plates. Introduction to intaglio techniques of etching, aquatint and drypoint. Emphasis on personal imagery along with the expressive potential of the media. Particularly suited to developing drawing skills. Six contact hours. *(Fall)*

ARTR 2162. Silkscreen & Woodcut 1. (3) Prerequisites: ARTB 1201 and 1203 or consent of instructor. Beginning printmaking studio. Introduction to silkscreen techniques of photoemulsion, digital stencils, cut stencils, and screen filler stencils. Introduction to relief techniques of woodcut, linocut, and inkless embossing. Emphasis on personal imagery along with the expressive potential of the media. Six contact hours. *(Spring)*

ARTR 3061. Topics in Printmaking and Drawing. (1-3) Special topics in printmaking and/or drawing. May be repeated for credit with change in topic. *(On demand)*

ARTR 3162. Color Layers in Printmaking & Drawing. (3) Prerequisite: Either ARTR 2161, ARTR 2162, or ARTR 3161 or consent of instructor. Intermediate studio with a focus on greater exploration of color and color layering in printmaking and drawing. Further exploration of experimental and expressive image-making techniques and

concepts in any or combined media of printmaking and/or drawing. Six contact hours. *(Fall, Spring)*

ARTR 3161: Mixed Media: Works on Paper. (3)
Prerequisite: Either ARTR 2161, ARTR 2162, ARTD 2139, ARTP 2131 or consent of instructor. Intermediate studio exploring conceptual problems using color drawing media, painting, collage, and low-tech printmaking techniques. Emphasis on personal imagery along with the expressive potential of combined media. Six contact hours. *(Fall)*

ARTR 3263. Advanced Printmaking & Drawing. (3)
Prerequisites: ARTA 3202, ARTR 3161, and ARTR 3162 or consent of instructor. Advanced studio with an emphasis on personal artistic themes. Continued exploration and development of expressive image-making concepts and techniques in any media of printmaking and/or drawing. Six contact hours. *(Fall, Spring)*

ARTR 4961: Printmaking and Drawing Projects 1. (3)
Prerequisites: ARTR 3263 and ARTA 3202, or consent of instructor. Studio exploring individual direction(s) in any media of printmaking and/or drawing and preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

ARTR 4962. Printmaking & Drawing Projects 2. (3)
Prerequisite: ARTR 4961. Studio exploring individual direction(s) in any or combined media of printmaking and/or drawing and preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

ARTR 4963: Printmaking & Drawing Projects 3. (3)
Prerequisite: ARTR 4962; corequisite: ARTA 4601. Studio exploring individual direction(s) in any or combined media of printmaking and/or drawing and preparation for Senior Exhibition. Six contact hours. May be repeated for credit without the exhibition. *(Fall, Spring)*

Time Arts/Photography

ARTT 2191. Photographic Media I. (3) 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 hours. *(Fall, Spring, Summer)*

ARTT 3091. Topics in Time Arts. (1-3) Prerequisite: Consent of instructor. Special topics in time arts. May be repeated for credit with change in topic. *(On demand)*

ARTT 3105. Video Art 1. (3) Prerequisite: ARTM 2105. Video as an art form, including basic techniques of video production and editing, image processing techniques, integration between video and the computer, aesthetic and performance strategies for working in a time-based medium, and survey of the history of video art. Six contact hours. *(Spring)*

ARTT 3190. Digital Photography. (3) Prerequisite: 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. *(On demand)*

ARTT 3191. Camera & Light. (3) Prerequisites: 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 hours. *(On demand)*

ARTT 3193. Alternative Photographic Media. (3)
Prerequisite: ARTT 3391. Alternative silver and non-silver photographic media and aesthetics. Experimental studies in the personal and imaginative use of photographic materials. Six hours. *(On demand)*

ARTT 3195. Time Arts As Documents. (3) Prerequisite: ARTT 2191 or consent of instructor. Examines the nature of time arts 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 hours. *(On demand)*

ARTT 3205. Applied Electronic Media. (3) Prerequisites: ARTM 2105 and ARTA 3201 or 3202 or consent of the instructor. Advanced work in video art, interactive design, and electronic installation art. Six contact hours. *(Fall)*

ARTT 3391. Black & White Printing . (3) Prerequisites: ARTB 1201 and ARTT 2191. 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. *(Fall, Spring)*

ARTT 3392. Color Photography 1. (3) Prerequisite: ARTB 1201 and ARTT 2191. Continuation of ARTT 2191 with emphasis on color negative printing and theory and processes used as a means of creative personal expression. Six contact hours. *(On demand)*

ARTT 3891. Time Arts Workshop. (1-6) Prerequisite: Consent of instructor. Contracted and pre-approved arrangements for student to receive credit for photographic, video, and electronic imaging workshops conducted outside the University's course offerings. May be repeated for credit. Variable hours. *(On demand)*

ARTT 4191. Medium & Large Format Camera. (1-3)
Prerequisites: ARTT 2191, 3291, 3191, or consent of the instructor. Continuing advanced photographic studies exploring creative imaging using medium and large camera formats. Studies may be executed under daylight or studio conditions. Image output is either film and/or digital. Six contact hours. *(On demand)*

ARTT 4291. Advanced Time Arts Media. (3)
Prerequisite: ARTT 3191 or consent of instructor. Advanced use of Time Arts media for individual creative expression. May be repeated for credit. Six contact hours. *(On demand)*

ARTT 4409: Internship in Time Arts. (3) Prerequisites: ARTT 3191, ARTT 4291, ARTA 3202, and consent of instructor, department, and sponsor. Non-salaried opportunity for students to observe, examine, and participate in the creative dynamics and procedural operations of photography and e-media art organizations, photographically and e-media related businesses, or museum studies. Sponsor and faculty supervised. An average of eight hours per week for fifteen weeks for a total of 120 hours. *(Pass/No Credit.) (Fall, Spring, Summer)*

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ARTT 4991. Time Arts Projects 1. (3) Prerequisite: ARTA 3202, 12 hours of photographic requirements or consent of instructor. Photographic, video and photo-electronic 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. *(Fall, Spring)*

ARTT 4992. Time Arts Projects 2. (3) Prerequisite: ARTT 4991; Co-requisite: ARTA 4601. Continuation of ARTT 4991 and completion of a body of original art work. Six contact hours. *(Fall, Spring)*

Sculpture

ARTZ 2104. Installation Art. (3) Prerequisites: ARTB 1201 and 1202. 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. May be repeated one time for credit. *(On demand)*

ARTZ 2141. Sculpture 1: Construction. (3) Prerequisites: ARTB 1202 and 1203 or consent of instructor. Beginning studio exploring three-dimensional forms, concepts, and basic construction techniques utilizing wood as the primary media. Six contact hours. *(Fall, Spring)*

ARTZ 2146. Metalsmithing/Jewelry I. (3) Prerequisite: ARTB 1202 or consent of instructor. Beginning studio exploring three-dimensional forms, concepts and techniques utilizing non-ferrous metals in functional design. Six hours. *(Fall, Spring or On demand)*

ARTZ 3041. Topics in Sculpture. (1-3) Prerequisite: ARTB 1202. Special Topics in sculpture. May be repeated for credit with change in topic. *(On demand)*

ARTZ 3046. Topics in Metalsmithing/Jewelry. (1-3) Prerequisite: ARTZ 2146. Special topics in metalsmithing. May be repeated for credit with change in topic. *(Fall, Spring)*

ARTZ 3142. Sculpture 2: Casting & Fabrication. (3) Prerequisites: ARTZ 2141 or consent of instructor. Intermediate studio continuing exploration of three-dimensional forms and concepts while introducing metal casting, more advanced wood-forming processes, and basic metal-fabrication techniques. Six contact hours. *(Fall, Spring)*

ARTZ 3243. Sculpture 3: Additive/Subtractive/Assemblage. (3) Prerequisites: ARTC 2171 or ARTC 2172 and ARTZ 3142 or consent of instructor. Advanced studio continuing exploration of three-dimensional forms and concepts while introducing additive/subtractive processes utilizing clay and plaster, and advanced metal-fabrication techniques. Six contact hours. *(Fall, Spring)*

ARTZ 3344. Sculpture 4: Public Sculpture. (3) Prerequisites: ARTA 3203 and ARTZ 3243 or consent of instructor. Studio continuing exploration of three-dimensional forms and concepts while introducing techniques and issues related to designing, constructing and installing large scale public sculpture. Six contact hours. *(Fall,*

Spring)

ARTZ 4941. Sculpture Projects 1. (3) Prerequisites: ARTZ 3344 or consent of instructor. Studio continuing exploration of individual direction(s) in sculpture in preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

ARTZ 4942. Sculpture Projects 2. (3) Prerequisites: ARTZ 4941 or consent of instructor. Studio continuing exploration of individual direction(s) in sculpture in preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

ARTZ 4943. Sculpture Projects 3. (3) Prerequisite: ARTZ 4942; corequisite: ARTA 4601. Studio continuing exploration of individual direction(s) in sculpture in preparation for Senior Exhibition. Six contact hours. *(Fall, Spring)*

BIOLOGY (BIOL)

BIOL 1000. Special Topics in Biology. (1-4) Prerequisites: vary with course. Special topics for non-majors in Biology. May be repeated for credit as topics vary. Lecture hours and laboratory hours vary by courses taught. *(On demand)*

BIOL 1110. Principles of Biology I. (3) BIOL 1110L. Introduction to biology for non-majors. Fundamental principles of life with a human emphasis. Not accepted toward the major in Biology. *(Fall, Spring, Summer)*

BIOL 1110L. Principles of Biology I Laboratory. (1) Prerequisite or corequisite: BIOL 1110. One laboratory period of three hours a week. Not accepted toward the major in Biology. *(Fall, Spring, Summer)*

BIOL 1115. Principles of Biology II. (3) Prerequisite: BIOL 1110 or consent of instructor. Continuation of BIOL 1110 for non-majors. Fundamental principles of life with a human emphasis. *(Fall, Spring, Summer)*

BIOL 1259. Bacteriology. (3) Prerequisite: one semester of chemistry. 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 major in Biology. *(Fall, Spring, Summer)*

BIOL 1259L. Bacteriology Laboratory. (1) Prerequisite or corequisite: BIOL 1259. One laboratory period of three hours a week. Not accepted toward the major in Biology. Attendance mandatory for safety training. *(Fall, Spring, Summer)*

BIOL 1273. Human Anatomy and Physiology. (3) Prerequisites: CHEM 1203, 1204. Fundamentals of the anatomy and physiology of the human body. Not accepted toward the major in Biology. *(Fall, Summer)*

BIOL 1273L. Human Anatomy and Physiology Laboratory. (1) Prerequisite or corequisite: BIOL 1273. One laboratory period of three hours a week. Not accepted toward the major in Biology. *(Fall, Summer)*

BIOL 1274. Human Anatomy and Physiology II. (3) Not accepted toward the major in Biology. Prerequisite: BIOL 1273. Continuation of BIOL 1273. Students cannot receive credit for both BIOL 1274 and BIOL 3273. *(Spring, Summer)*

BIOL 1274L. Human Anatomy and Physiology Laboratory II. (1) Prerequisite or corequisite: BIOL 1274. One laboratory period of three hours a week. Not accepted toward the major in Biology. *(Spring, Summer)*

BIOL 2000. Special Topics in Biology. (1-4) Prerequisites: vary with course. Special introductory topics for biology majors. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught. *(On demand)*

BIOL 2120. General Biology I. (3) Prerequisite: none. Co-requisite: BIOL 2120L. Origin and early evolution of life, basic principles of chemistry, cell biology, and development. Three lecture periods per week. *(Fall, Spring, Summer)*

BIOL 2120L. General Biology I Laboratory. (1) Prerequisite and/or co-requisite: BIOL 2120. Experimental lab covering osmosis, enzyme activity, photosynthesis, cell division, inheritance. Two laboratory periods per week. *(Fall, Spring, Summer)*

BIOL 2130. General Biology II. (3) Prerequisite: BIOL 2120 and BIOL 2120L; co-requisite: BIOL 2130L. Ecology, evolution, biodiversity, plant and animal structure and function. Three lecture periods per week. *(Fall, Spring, Summer)*

BIOL 2130L. General Biology II Laboratory. (1) Prerequisite and/or co-requisite: BIOL 2120, and BIOL 2120L; co-requisite/prerequisite: BIOL 2130. Population ecology, evolution, phylogenetics, invertebrate biology, animal and plant physiology. Two laboratory periods per week. *(Fall, Spring, Summer)*

BIOL 3000. Special Topics in Biology. (1-4) Prerequisite: vary with course. Special topics for intermediate level majors in Biology. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught. *(On demand)*

BIOL 3111. Cell Biology. (3) Prerequisite: BIOL 2130 + lab; prerequisite or corequisite: CHEM 2131 + lab; co-requisite: BIOL 3111L. Structure and function of cells. Biomolecular structures and their interactions including membranes, proteins and nucleic acids. *(Fall, Spring)*

BIOL 3111L. Cell Biology Laboratory. (1) (W) Prerequisite or corequisite: BIOL 3111. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3144. Ecology. (3) Prerequisite: BIOL 2130; prerequisite or corequisite: CHEM 2131. Interrelationships of organisms and their environment. *(Fall, Spring)*

BIOL 3144L. Ecology Laboratory. (1) (W) Prerequisite or corequisite: BIOL 3144. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3166. Genetics. (3) Prerequisite: BIOL 2130; prerequisite or corequisite: CHEM 2131. Basic concepts of

heredity; principles of classical, molecular, and population genetics. *(Fall, Spring, Summer)*

BIOL 3166L. Genetics Laboratory. (1) (W) Prerequisite or corequisite: BIOL 3166. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3202. Horticulture. (3) (W) Prerequisite: BIOL 2130. Principles of horticulture, greenhouse management, environmental factors, production, and maintenance of cultivars, and landscaping. *(Fall)*

BIOL 3202L. Horticulture Laboratory. (1) Prerequisite or corequisite: BIOL 3202. Greenhouse work, plant identification, and field trips. One laboratory period of three hours a week. *(Fall)*

BIOL 3215. Economic Botany. (3) (W) Prerequisite: BIOL 2130. Origins of agricultural plants; history of use and misuse of plants by humans; consideration of major groups of crop, spice, medicinal, and drug plants. *(Spring)*

BIOL 3229. Field Botany. (3) Prerequisite: BIOL 2130 and consent of Department. 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 10 days. *(Summer)*

BIOL 3231. Invertebrate Zoology. (4) Prerequisite: BIOL 2130. Taxonomy, anatomy, physiology, and life histories of selected invertebrates. Three lecture hours and one laboratory period of three hours a week. *(On demand)*

BIOL 3233. Vertebrate Zoology. (4) Prerequisite: BIOL 2130. Taxonomy, anatomy, physiology, and life histories of vertebrates. Three lecture hours and one laboratory period of three hours a week. *(Fall)*

BIOL 3234. Field Entomology. (3) Prerequisite: BIOL 2130 or consent of Department. A field course stressing identification and ecology of insects of the Piedmont of North Carolina. Six hours a day for 10 days. *(Summer)*

BIOL 3235. The Biology of Insects. (3) Prerequisite: BIOL 2130. or consent of Department. The anatomy, physiology, development, behavior, ecology, and medical and economic importance of insects. *(On demand)*

BIOL 3236. General Zoology. (3) Prerequisite: BIOL 2130. The morphology, function, development, phylogeny, and ecology of the principal invertebrate and vertebrate types. *(On demand)*

BIOL 3236L. General Zoology Lab. (3) Prerequisite or corequisite: BIOL 3236. One laboratory period of three hours a week. *(On demand)*

BIOL 3271. Cellular Neuroscience. (3) Prerequisite: BIOL 2130 (Biology majors), PSYC 3113 (Psychology majors) or consent of Department. Physiology and biophysics of neurons synapses and principles of neural development and neural plasticity. *(Fall)*

BIOL 3271L. Neuroscience Laboratory. (1) Prerequisite or corequisite: BIOL 3271. Principles of excitability and synaptic function; neuroanatomy; neural system functions,

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and behavior investigated non-invasive experimentation with humans and animals. *(Fall)*

BIOL 3272. Plant Physiology. (3) Prerequisite: BIOL 2130; prerequisite or corequisite: CHEM 2131. Metabolic and physiological processes of plants and conditions which affect or regulate these processes. *(On demand)*

BIOL 3272L. Plant Physiology Laboratory. (1) Prerequisite or corequisite: BIOL 3272. One laboratory period of three hours a week. *(On demand)*

BIOL 3273. Animal Physiology. (3) Prerequisite: BIOL 2130; prerequisite or corequisite: CHEM 2131. Fundamental control mechanisms that operate to maintain the homeostatic state. Students cannot receive credit for both BIOL 1274 and BIOL 3273. *(Fall, Spring)*

BIOL 3273L. Animal Physiology Laboratory. (1) (W) Prerequisite or corequisite: BIOL 3273. One laboratory period of three hours a week. *(Fall, Spring)*

BIOL 3274. Systems Neuroscience. (3) Prerequisite: BIOL 2130 (Biology majors), PSYC 3113 (Psychology majors) or equivalent. Review of neuron excitability and synaptic function; physiology of the main functional systems: sensory, motor, homeostatic/affective, and gnostic; system-level origins of learning, memory, and consciousness. *(Spring)*

BIOL 3405. Internship in Community Education and Service. (1-3) Prerequisites: junior standing, acceptance into program and approval of department. A project-oriented, service-learning internship with a community organization. The Department of Biology has the option of recognizing this credit as fulfilling departmental requirements and granting permission to repeat credit. Maximum credit toward major is two hours for B.A. and three hours for B.S. *(Fall, Spring, Summer)*

BIOL 3500. Biology Cooperative Education or 49ership Experience. (0) Prerequisite: approval by the Department and the University Career Center. Required of students participating in the 49ership or Cooperative Education Program during the semesters in which they are working. Participating students pay a registration fee for transcript notation (49ership and coop) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. *(Fall, Spring)*

BIOL 3800. Tutorial in Biology. (1-4) Prerequisite: Consent of Department. Enables junior and senior biology majors to engage in directed study in their fields of interest. Maximum credit toward major: one hour for B.A.; two hours for B.S. May be repeated for credit. *(Fall, Spring, Summer)*

BIOL 3900. Undergraduate Research. (1-4) Prerequisite: Consent of the Department. Enables junior and senior biology majors to initiate research projects in their respective fields of interest. Maximum credit toward major: two hours for B.A.; three hours for B.S. May be repeated for credit as topics vary. May substitute for only one lab. *(Fall, Spring, Summer)*

BIOL 4000. Special Topics in Biology. (1-4) Prerequisites and credit hours vary with topics. Special topics for advanced

undergraduates. May be repeated for credit as topics vary. Lecture hours and laboratory hours will vary with the courses taught. *(Fall, Spring)*

BIOL 4111. Evolution. (3) Prerequisites: BIOL 3166. Theories of evolution and forces which affect gene frequencies. *(Fall)*

BIOL 4121. Biometry. (4) Prerequisite: one course in statistics. Design and analysis of experiments. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4144. Advanced Ecology. (4) (W) Prerequisite: BIOL 3144. Energy flow, nutrient cycles, community structure, population growth, and regulation. Three lecture hours and one laboratory period of three hours a week. *(Alternate Spring)*

BIOL 4149. Limnology and Oceanography. (4) Prerequisite: BIOL 2130. Geological, physical, chemical, and biological aspects of lakes, streams, estuaries and oceans. Three lecture hours and one laboratory period of three hours a week. *(Fall)*

BIOL 4167. Medical Genetics. (3) Prerequisite: BIOL 3166. Detection of and insight into intrauterine, chromosomal, genic, and molecular abnormalities. *(Spring)*

BIOL 4168. Recombinant DNA Techniques. (4) Prerequisite: BIOL 3166 or CHEM 4165 and permission of the 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. *(Fall)*

BIOL 4171. Cell Physiology. (3) Prerequisite: BIOL 3111. The fundamental physiochemical properties of cells. *(Spring)*

BIOL 4184. Plant Biotechnology. (3) Prerequisites: BIOL 3111, 3166 and CHEM 2132 or consent 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. *(On demand)*

BIOL 4189. Mechanisms in Development. (3) Prerequisite: BIOL 4283 or permission of the Department. Cellular and molecular bases of differentiation; an exploration of the experimental analysis of causal and controlling factors in development. *(Spring)*

BIOL 4199. Molecular Biology. (3) Prerequisites: BIOL 3111, 3166 and CHEM 2132. Structural and functional interaction of nucleic acids and proteins in the replication, transcription, and translation of genetic material. *(Spring)*

BIOL 4205. Advanced Horticulture. (3) Prerequisite: BIOL 3202. Topics in ornamental horticulture and landscaping, including greenhouse projects and field trips. Two lecture hours and three hours of lab a week. *(Spring)*

BIOL 4221. Plant Systematics. (4) (W) Prerequisite: BIOL 3166. Identification and classification of vascular plants, including experimental concepts of speciation. Three lecture

hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4223. The Fungi. (3) Prerequisite: BIOL 2130; Consent of Department for graduate credit. Morphology, life cycles, ecology, taxonomy, and medical economic significance of the fungi and organisms historically aligned with the fungi. *(On demand)*

BIOL 4223L. The Fungi Laboratory. (1) Prerequisite or corequisite: BIOL 4223; Consent of Department for graduate credit. One laboratory period of three hours a week. *(On demand)*

BIOL 4229. Dendrology. (4) Prerequisite: BIOL 4221. The identification, structure, function, ecology, reproduction, and evolutionary relationships of woody plants. Three lecture hours and one three-hour lab a week. *(Fall)*

BIOL 4233. Parasitology. (4) Prerequisite: BIOL 2130. Morphology, life cycles, ecology, taxonomy and economic importance of parasites. Three lecture hours and one laboratory period of three hours a week. *(Spring)*

BIOL 4234. Wildlife Biology. (3) (W) Prerequisite: BIOL 3144. Concepts, principles and techniques of wildlife biology. Value, demography, management, and conservation. *(On demand)*

BIOL 4234L. Wildlife Biology Laboratory. (1) Lab is required. One laboratory period of three hours a week plus field trips. *(On demand)*

BIOL 4235. Mammalogy. (4) Prerequisite: BIOL 3233 or 4293. Taxonomy, anatomy, physiology, and life histories of the mammals. Three lecture hours and one laboratory period of three hours a week. *(Fall)*

BIOL 4242. The Biology of Birds. (3). Prerequisite: BIOL 3144 or consent of department. Overview of general avian biology, including taxonomy and anatomy, but concentrating on behavior, ecology and conservation of birds. Focus will be on birds of the southeastern U.S. Three lecture hours and one laboratory period of three hours per week. *(Spring)*

BIOL 4242L. The Biology of Birds Lab. (1). Meets for one three-hour period per week (Spring). The laboratory and field portion of the Biology of Birds will focus on field identification and inventory techniques, with an introduction to anatomy. Students will need binoculars. *(Spring)*

BIOL 4243. Animal Behavior. (3) Prerequisite: BIOL 2130. An ethological approach to how animals respond to their environment. Causation, development, and adaptive significance of behavior in social systems. *(Fall)*

BIOL 4243L. Animal Behavior Laboratory. (1) Prerequisite or corequisite: BIOL 4243. One laboratory period of three hours a week. *(Fall)*

BIOL 4244. Conservation Biology. (3) (W) Prerequisite: BIOL 3144. Conservation values, extinction rates, genetic diversity, demography, habitat fragmentation, reserve management, ecological restoration. *(Yearly)*

BIOL 4244L. Conservation Biology Laboratory. (1) Prerequisite or corequisite: BIOL 4244. One laboratory period of three hours a week plus field trips. *(Fall)*

BIOL 4250. Microbiology. (3) Prerequisite: BIOL 3111. Morphology, physiology, pathogenicity, metabolism, and ecology of bacteria, viruses, protozoa, and fungi. Aquatic, dairy, and food microbiology. *(Fall, Spring)*

BIOL 4250L. Microbiology Laboratory. (1) (W) Prerequisite or corequisite: BIOL 4250. One laboratory period of three hours a week. Attendance mandatory for safety training. *(Fall, Spring)*

BIOL 4251. Immunology. (3) Prerequisites: BIOL 3166. Cellular, molecular and genetic basis for immunity; physical chemistry of antigens and antibodies and their interactions; defense mechanisms. *(Spring)*

BIOL 4251L. Immunology Laboratory. (1) Prerequisite or corequisite: BIOL 4251. One laboratory period of three hours a week. *(Spring)*

BIOL 4253. Marine Microbiology. (4) Prerequisites: BIOL 4250 and 4250L. 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. *(Spring)*

BIOL 4254. Epidemiology. (3) Prerequisite: BIOL 1259 or 4250. History and practices of epidemiology with emphasis on modes of transmission of clinically important infectious agents and the analysis of epidemiological data. Three lecture hours a week. *(On demand)*

BIOL 4255. Bacterial Genetics. (3) Prerequisite: BIOL 3166 or consent of Department. Regulation of gene expression in bacterial systems. Bacteriophage genetics. DNA transfer in bacteria. *(Spring)*

BIOL 4256. Pathogenic Bacteriology. (3) Prerequisite: BIOL 4250. Cellular and molecular interactions of mammalian hosts with procaryotic parasites. *(Fall)*

BIOL 4256L. Pathogenic Bacteriology Laboratory. (1) (W) Prerequisite: BIOL 4250L. Prerequisite or corequisite: BIOL 4256. One laboratory period of three hours a week. *(Fall)*

BIOL 4257. Microbial Physiology and Metabolism. (3) Prerequisite: BIOL 4250. 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. *(Spring)*

BIOL 4257L. Microbial Physiology and Metabolism Lab. (1) Prerequisite or co-requisite: 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. *(On demand)*

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BIOL 4259. Virology. (3) Prerequisites: BIOL 4250, 4250L and CHEM 2132. Morphology, classification, genetics, and pathogenicity of bacterial and animal viruses. *(Fall)*

BIOL 4259L. Virology Laboratory. (1) Prerequisite or corequisite: BIOL 4259. One laboratory period of three hours per week. *(On demand)*

BIOL 4260. Population Genetics. (3) Prerequisite: STAT 1221, BIOL 3166. 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. *(On demand)*

BIOL 4277. Endocrinology. (3) Prerequisites: BIOL 3273. Endocrine glands and their physiological roles in metabolism, growth and reproduction. *(Spring)*

BIOL 4277L. Endocrinology Laboratory. (1) Prerequisite or corequisite: BIOL 4277. One laboratory period of three hours a week. *(On demand)*

BIOL 4279. Neurobiology. (3) Prerequisite: BIOL 3273. Physiology and anatomy of nervous systems, especially mammalian. *(Spring)*

BIOL 4279L. Neurobiology Laboratory. (1) Prerequisite or corequisite: BIOL 4279. One laboratory period of three hours a week. *(Spring)*

BIOL 4282. Developmental Plant Anatomy. (3) Prerequisite: BIOL 2130. Study of plant cells, tissues, organs, and patterns of growth and differentiation. *(On demand)*

BIOL 4282L. Developmental Plant Anatomy Laboratory. (1) Prerequisite or corequisite: BIOL 4282. One laboratory period of three hours a week. *(On demand)*

BIOL 4283. Animal Development. (3) Prerequisite: BIOL 3111. Developmental processes occurring chiefly during gametogenesis, fertilization, early embryogenesis, and organogenesis. *(On demand)*

BIOL 4283L. Animal Development Laboratory. (1) Prerequisite or corequisite: BIOL 4283. One laboratory period of three hours a week. *(On demand)*

BIOL 4291. Histology. (4) Prerequisite: BIOL 2130. Animal tissues and organs; techniques of preparing tissues for analysis. Three lecture hours and one laboratory period of three hours a week. *(On demand)*

BIOL 4292. Advances in Immunology. (3) Prerequisite: BIOL 4251 or consent of Department. Current topics in immunology with particular emphasis upon the genetic systems and molecular mechanisms underlying immune reactions. Additional work required by graduate students. *(Fall)*

BIOL 4293. Comparative Vertebrate Anatomy. (4) Prerequisite: BIOL 3111. 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. *(Spring)*

BIOL 4600. Senior Seminar. (1) (O,W) Prerequisite: Senior standing. Required of all majors. Student presentation of oral and written reports from pertinent biological literature. Exit exam for biology majors will be administered. *(Fall, Spring, Summer)*

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. *(Spring)*

BIOL 4700. Honors Research I. (3) Prerequisite: BIOL 4601. Senior status. Independent Honors project: proposal, and research. By invitation. *(Fall, Spring, Summer)*

BIOL 4701. Honors Research II. (3) (O,W) Prerequisite: BIOL 4700. Independent Honors project: thesis preparation and presentation of results. May be substituted for BIOL 4600 and for one lab. *(Fall, Spring, Summer)*

BUSINESS LAW (BLAW)

BLAW 3150. Business Law I. (3) Prerequisite: INFO 2130, junior standing, business major or consent of the department. A study of the legal setting of business and its relationship to the business firm. Topics covered 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. *(Fall, Spring, Summer) (Evenings)*

BLAW 3250. Business Law II. (3) Prerequisite: BLAW 3150; junior standing, business major or consent of the department. The study of the Uniform Commercial Code. Subjects covered 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. *(Fall, Spring) (Evenings)*

BUSINESS HONORS (BUSN)

BUSN 1100. Freshman Honors Seminar. (1). Prerequisites: 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. *(Fall)*

BUSN 2000. Topics in Business and Economics. (1-3) Current topics from business and economics. May be repeated for credit as topics vary with permission of student's major Department Chair. *(On demand)*

BUSN 2400. Business Honors Internship. (1) Prerequisites: Sophomore, junior or senior students in good

standing in the Business Honors Program, and the completion of INFO 2130 or equivalent. Requires permission of Business Honors Program Coordinator. May be taken for repeat credit with different companies for up to a maximum of three (3) semester hours of credit. Provides a meaningful work experience, appropriate for the level of completed coursework of the student. Requires 50-150 hours of supervised employment. Requires a summary paper describing the business issues and processes learned through the experience. Internship proposals may be initiated by the student or by the Business Honors Program Coordinator. Students should consult with the Coordinator of the Business Honors Program in advance of registration to verify acceptability of work experience. Proposal forms must be completed and approved prior to registration. *Graded on a Pass/No Credit Basis. (Fall, Spring, Summer)*

BUSN 3770. Business Honors Thesis Topics. (1) Prerequisite: permission of the Business Honors Program Coordinator. Exploration of current business research topics through presentations by business faculty. *Graded on a Pass/No Credit Basis. (Spring)*

BUSN 3780. Business Honors Seminar. (3) Prerequisites: permission of the Business Honors Program Coordinator. Exploration of current topics in business and the methods of research appropriate to them. Development of research project proposal for Business Honors Thesis (BUSN 3790). *(Spring)*

BUSN 3790. Business Honors Thesis. (3) Prerequisites: BUSN 3780 and permission of Business Honors Coordinator. Honors project directed by Business Honors committee or assigned faculty member. One faculty contact hour per week and independent research. *(On demand)*

CIVIL ENGINEERING (CEGR)

Note: Details provided in the Civil Engineering course descriptions in this Catalog are subject to change. Please contact the Department for the most current information.

CEGR 2101. Civil Engineering Drawing. (2) Prerequisite: ENGR 1202. 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. *(Fall)*

CEGR 2102. Engineering Economic Analysis. (2) 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. *(Fall)*

CEGR 2104. Surveying and Site Design. (3) Prerequisite: ENGR 1202. Elements of plane surveying, including taping, use of level, transit, theodolite, and total station; topographical surveying and mapping; error adjustment; area and volume computations; introduction to photogrammetry; site development; computer applications. One hour of lecture and 3 hours of field work for four weeks: three hours of lecture for 11 weeks. *(Spring)*

CEGR 2154. Design Project Lab. (3) (O) Prerequisite: CEGR 2102. Corequisite: ENGR 1202. 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. *(Spring)*

CEGR 3090. Special Topics in Civil Engineering. (1-4) Prerequisite: Consent of CE Advisor. Examination of specific new areas emerging in the various fields of civil engineering based upon and synthesizing knowledge students have gained from the engineering science, mathematics, and physical science stems of the core curriculum. May be repeated for credit. *(On demand)*

CEGR 3122. Structural Analysis. (3) Prerequisites: MEGR 2144 and MATH 2171 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. *(Fall)*

CEGR 3141. Introduction to Environmental Engineering. (3) Prerequisite: MATH 2171, CHEM 1251, 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. *(Fall)*

CEGR 3143. Hydraulics and Hydrology. (3) Prerequisite: MEGR 2141 and junior standing. Fluid properties, pressure, closed-conduit flow, pipe networks, pumps, open channel flow, weirs, orifices, flumes; precipitation, runoff, groundwater flow, stream flow; flow measurement. *(Fall)*

CEGR 3153. Transportation Laboratory. (1) (W) 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. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3155. Environmental Laboratory. (1) (W) Prerequisite: CHEM 1251L, 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. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3161. Transportation Engineering I. (3) Prerequisite: MATH 2241; CEGR 2102, 2104, and junior standing. Analysis of transportation facilities; planning, location, and economic considerations, with special emphasis on land transportation. *(Fall)*

CEGR 3201. Systems and Design I. (3) Prerequisite: senior standing in Civil Engineering, CEGR 2154, and 3 of the following and the rest in progress: CEGR 3122, 3141, 3143, 3161, 3278. Systems engineering techniques applied to civil engineering problems emphasizing methodological considerations and engineering projects carried out by small groups of students. *(Fall)*

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CEGR 3202. Systems and Design II. (4) Prerequisite: CEGR 3201. Continuation of CEGR 3201. Creatively investigate and 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. *(Spring)*

CEGR 3212. Computer Applications in Civil Engineering. (3) Prerequisite: 3 of the following: CEGR 3122, 3141, 3143, 3161, 3278. Application of computers and numerical methods to various types of civil engineering problems. Examinations in depth of selected civil engineering problems. *(On demand)*

CEGR 3221. Structural Steel Design I. (3) Prerequisites: CEGR 3122 and CEGR 3255 or consent of CE Advisor. 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. *(Fall)*

CEGR 3225. Reinforced Concrete Design I. (3) Prerequisite: CEGR 3122 and CEGR 3255 or consent of CE Advisor. 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. *(Fall)*

CEGR 3232. Urban Engineering. (3) Prerequisite: Consent of CE 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. *(On demand)*

CEGR 3255. Structural Materials Laboratory I. (1) (W) Prerequisite: CEGR 3122. Composition, properties, and testing of: wood, natural and artificial aggregates, bitumens, portland cement concrete, pozzolans, and structural metals. Data analysis, presentation, and report writing. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3258. Geotechnical Laboratory. (1) (W) Corequisite: CEGR 3278. Tests to determine engineering properties of soils; consistency, permeability, shear strength, and consolidation. Data analysis, presentation and report writing. One hour of lecture and three hours of laboratory per week. *(Spring)*

CEGR 3278. Geotechnical Engineering. (3) Prerequisite: MATH 2171, and MEGR 2144. 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. *(Fall)*

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. *Pass/No Credit grading. (Fall)*

CEGR 3695. Civil Engineering Cooperative Education Seminar. (1) Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. *(Fall, Spring, Summer)*

CEGR 3890. Individualized Study. (1-3) Prerequisite: Consent of CE Advisor. Supervised individual study within an area of a student's particular interest which is beyond the scope of existing courses. *(On demand)*

CEGR 3990. Undergraduate Research in Civil Engineering. (1-4) Prerequisite: Consent of CE Advisor. This course involves independent study of a theoretical and/or experimental problem in a specialized area of Civil Engineering. May be repeated for credit. *(On demand)*

CEGR 4090. Special Topics in Civil Engineering. (1-4) Consent of CE Advisor. Study of specific new areas emerging in the various fields of civil engineering. May be repeated for credit. *(On demand)*

CEGR 4108. Finite Element Analysis and Applications. (3) Prerequisite: Consent of CE Advisor. 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. *(Spring)*

CEGR 4121. Prestressed Concrete Design. (3) Prerequisites: CEGR 3225 and 4224 or consent of CE 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. *(On demand)*

CEGR 4123. Bridge Design. (3) Prerequisites: CEGR 3221 and 3225, or consent of CE 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. *(Spring) (Alternate years)*

CEGR 4124. Masonry Design. (3) Prerequisites: CEGR 3225 or consent of CE Advisor. Introduction of masonry materials and engineering and materials properties and testing procedures. Design of reinforced and unreinforced 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. *(On demand)*

CEGR 4128. Matrix Methods of Structural Analysis. (3) Prerequisite: CEGR 3122 or consent of CE 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. *(On demand)*

CEGR 4141. Process Engineering. (3) Prerequisite: CEGR 3141 or consent of CE 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. *(Fall)*

CEGR 4142. Water/Wastewater Engineering. (3) Prerequisite: CEGR 3141 or consent of CE Advisor. Analysis and design of water and wastewater treatment processes including physical, chemical and biological treatment. Computer-aided design of treatment systems. *(Spring)*

CEGR 4143. Solid Waste Management. (3) Prerequisite: CEGR 3141 or consent of CE Advisor. Solid waste management, sources, generation rates, processing and handling, disposal, recycling, landfill closures, and remedial actions for abandoned waste sites. *(Spring) (Alternate years)*

CEGR 4144. Engineering Hydrology. (3) Prerequisite: Consent of CE Advisor. A 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. *(On demand)*

CEGR 4145. Groundwater Resources Engineering. (3) Prerequisite: CEGR 3141 or CEGR 3143 or consent of CE Advisor. Overview of hydrological cycle. Principles of groundwater flow and well hydraulics. Regional groundwater flow and flow nets. Water chemistry and contamination. Applications of groundwater modeling. *(Fall) (Alternate years)*

CEGR 4146. Advanced Engineering Hydraulics. (3) Prerequisite: CEGR 3143 or consent of CE 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. *(On demand)*

CEGR 4161. Advanced Traffic Engineering. (3) Prerequisite: CEGR 3161 or consent of CE 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. *(Fall)*

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. *(On demand)*

CEGR 4171. Urban Public Transportation. (3) Prerequisite: CEGR 3161 or consent of CE 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. *(On demand)*

CEGR 4181. Human Factors in Traffic Engineering. (3) Prerequisite: CEGR 3161 or consent of CE 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. *(On demand)*

CEGR 4182. Transportation Environmental Assessment. (3) Prerequisites: Senior standing and consent of CE 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. *(On demand)*

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. *(On demand)*

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. *(On demand)*

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. *(On demand)*

CEGR 4222. Structural Steel Design II. (3) Prerequisite: 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, beams with lateral-torsional buckling, continuous beams, and beam columns are covered. Welded and bolted connections. Current AISC Specifications used. *(Spring)*

CEGR 4224. Advanced Structural Analysis. (3) Prerequisite: CEGR 3122. A continuation of CEGR 3122. Methods to determine deflections in structural members, including moment area, conjugate beam, virtual work, and Castigliano's theorem. Methods to analyze statically indeterminate structures, including approximate force, slope deflection, moment distribution, and matrix stiffness methods. Project to compare analysis techniques and introduce use of structural analysis computer programs. *(Spring)*

CEGR 4226. Reinforced Concrete Design II. (3) Prerequisite: 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

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and design of a concrete structure. Current ACI Specifications used. *(Spring)*

CEGR 4241. Chemical Processes in Water and Wastewater Treatment. (3) Prerequisites: CHEM 1251 and CEGR 3141, or consent of CE 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. *(On demand)*

CEGR 4262. Traffic Engineering. (3) Prerequisite: CEGR 3161 or consent of CE 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. *(Spring)*

CEGR 4270. Earth Pressures and Retaining Structures. (3) Prerequisites: CEGR 3122 and 3278 or consent of CE 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. *(On demand)*

CEGR 4271. Pavement Design. (3) Prerequisites: CEGR 3161 and 3278, or consent of CE 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. *(On demand)*

CEGR 4278. Geotechnical Engineering II. (3) Prerequisite: CEGR 3278 or consent of CE Advisor; corequisite: CEGR 3258. 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. *(Spring)*

CEGR 4892. Individualized Study and Projects. (1-6) Prerequisites: Consent of CE Advisor. Individual investigation and exposition of results. May be repeated for credit. *(On demand)*

CHEMISTRY (CHEM)

Separate lecture and laboratory sections--Although the laboratory and lecture sections of CHEM 1111, 1112, 1203, 1204, 1251, 1252, 2131 and 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 dropped from the corresponding laboratory unless prior approval of the Chemistry Department is obtained. Students using CHEM 1111 and 1112 or CHEM 1203 and 1204 or CHEM 1251 and 1252 to satisfy the General Education requirements for the B.A. and B.S. degree must also take the associated laboratory courses.

CHEM 1111. Chemistry in Today's Society. (3) For students not majoring in a Physical or Biological Science, Engineering, or science-oriented preprofessional program. Qualifies as a prerequisite only for CHEM 1112. 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: 1111, 1203, or 1251.) *(Fall, Summer)*

CHEM 1111L. Laboratory in Chemistry. (1) Prerequisite 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: 1111L, 1203L, or 1251L.) *(Fall, Summer)*

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: 1112, 1204 or 1252.) *(Spring, Summer)*

CHEM 1112L. Laboratory in Chemistry. (1) Prerequisite: CHEM 1111 and 1111L. Prerequisite or corequisite: CHEM 1112. Continuation of CHEM 1111L. One three-hour laboratory per week. (Credit will be given for only one course: 1112L, 1204L, or 1252L.) *(Spring, Summer)*

CHEM 1203. General Chemistry. (3) Primarily for nursing majors. 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: 1111, 1203, or 1251.) *(Fall, Summer)*

CHEM 1203L. General Chemistry Laboratory. (1) Prerequisite 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: 1111L, 1203L, or 1251L.) *(Fall, Summer)*

CHEM 1204. General Chemistry. (3) Prerequisite: CHEM 1203. Continuation of CHEM 1203, with emphasis on organic chemistry and selected topics in biochemistry. 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: 1112, 1204, or 1252.) *(Spring, Summer)*

CHEM 1204L. General Chemistry Laboratory. (1) Prerequisites: CHEM 1203 and 1203L. Prerequisite or corequisite: CHEM 1204. Continuation of CHEM 1203L with emphasis on the reactions and characterization of organic compounds. One three-hour laboratory per week. (Credit will be given for only one course: 1112L, 1204L, or 1252L.) *(Spring, Summer)*

CHEM 1251. Principles of Chemistry. (3) A principles-oriented course for science majors. Fundamental postulates and laws of chemistry; the relationship of atomic structure to physical and chemical properties of the elements. Three lecture hours and one Problem Session hour per week.

(Credit will be given for only one course: 1111, 1203, or 1251.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1251L. Principles of Chemistry Laboratory. (1) Prerequisite or corequisite: CHEM 1251. Experimental investigations involving the fundamental postulates and laws of chemistry. One three-hour laboratory per week. (Credit will be given for only one course: 1111L, 1203L, or 1251L.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1252. Principles of Chemistry. (3) Prerequisite: CHEM 1251. Continuation of CHEM 1251. Three lecture hours and one Problem Session hour per week. (Credit will be given for only one course: 1112, 1204, or 1252.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1252L. Principles of Chemistry Laboratory. (1) Prerequisites: CHEM 1251 and 1251L. Prerequisite or corequisite: CHEM 1252. Continuation of CHEM 1251L. One three-hour laboratory per week. (Credit will be given for only one course: 1112L, 1204L, or 1252L.) (*Fall, Spring, Summer*) (*Evenings*)

CHEM 1253L. Introduction to Modern Laboratory Methods. (1) Prerequisite or corequisite: CHEM 1252. For students planning to take additional chemistry courses; can be substituted for the 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. (*Spring*)

CHEM 1255. Inorganic Chemistry. (3) Prerequisite: CHEM 1252 with a grade of C or better. Descriptive inorganic chemistry including acid-based and non-aqueous solvent concepts. (*Spring*)

CHEM 2131. Organic Chemistry. (3) Prerequisite: CHEM 1251 and 1252, each with a grade of C or better. Descriptive principles and techniques of organic chemistry and their applications to reactions of aliphatic and aromatic compounds and natural products. (*Fall, Spring, Summer*)

CHEM 2131L. Organic Chemistry Laboratory. (1) Prerequisites: CHEM 1251, 1251L, 1252, 1252L, each with a grade of C or better. Prerequisite or corequisite: CHEM 2131 with a grade of C or better. Laboratory investigations into the physical and chemical properties of organic compounds. One laboratory period of three hours per week. (*Fall, Spring, Summer*)

CHEM 2132. Organic Chemistry. (3) Prerequisite: CHEM 2131 with a grade of C or better. Continuation of CHEM 2131. Three lecture hours and one Problem Session hour per week. (*Fall, Spring, Summer*)

CHEM 2132L. Organic Chemistry Laboratory. (1) Prerequisite: CHEM 2131L with a grade of C or better. Prerequisite or corequisite: CHEM 2132. Continuation of CHEM 2131L. One laboratory period of three hours per week. (*Fall, Spring, Summer*)

CHEM 2136L. Organic Chemistry Laboratory. (1) Prerequisite or corequisite: CHEM 2132. Laboratory investigation involving a research-type project in lieu of

CHEM 2132L. Available only upon departmental invitation. (*On demand*)

CHEM 2141. Survey of Physical Chemistry. (3) Prerequisites: CHEM 1252, 1252L with grades of C or better, MATH 1120 or one semester of calculus (high school or higher), PHYS 1101 or one semester of physics (high school or higher). 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. (*Spring*)

CHEM 3090. Special Topics in Chemistry. (1-4) Prerequisite: Consent of Department. Topics chosen from analytical, biochemistry, inorganic, organic, and physical chemistry. May be repeated for credit. Lecture and/or laboratory hours will vary with the nature of the course taught. (*On demand*)

CHEM 3111. Quantitative Analysis. (4) Prerequisites: CHEM 1252, 1252L with grades of C or better. Introductory to quantitative and analytical chemistry. Principles of equilibrium, classical and simple instrumental approaches are considered. Two lecture hours and two laboratory periods of three hours each week. (*Fall*)

CHEM 3112. Modern Separation Techniques. (4) Prerequisites: CHEM 2131, 2131L and 3111 with grades of C or better. 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. (*Spring*) (*Alternate years*)

CHEM 3113. Survey of Instrumental Methods of Analysis. (4) Prerequisites: CHEM 3111 with a grade of C or better. 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 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 4111. Two lecture hours and two three-hour laboratory periods per week. (*Spring*)

CHEM 3141. Physical Chemistry. (3) Prerequisites: CHEM 1252, 1252L with a grade of C or better; MATH 1241 and 1242; PHYS 2102 and 2102L. Prerequisite or corequisite: At least one of the following: MATH 2241, 2242, 2164, 2171, 3125, or a Department-approved mathematics course. Quantum chemistry, atomic and molecular structure, spectroscopy. (*Fall*)

CHEM 3141L. Physical Chemistry Laboratory. (1) Prerequisite or corequisite: CHEM 3141. Experiments in laser spectroscopy, quantum mechanics, kinetics, and thermodynamics. One laboratory period of three hours per week. (*Fall*)

CHEM 3142. Physical Chemistry. (3) Prerequisites: CHEM 1252, 1252L with a grade of C or better; MATH 1241 and 1242; PHYS 2102 and 2102L. Prerequisite or corequisite: At least one of the following: MATH 2241, 2242, 2164, 2171, 3125, or a department-approved mathematics course. Kinetic theory of gases, statistical and classical thermodynamics,

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kinetics. (*Spring*)

CHEM 3142L. Physical Chemistry Laboratory. (1)
Prerequisite: CHEM 3141L with a grade of C or better.
Prerequisite or corequisite: CHEM 3141 or 3142.
Continuation of CHEM 3141L. One laboratory period of three hours per week. (*Spring*)

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 Department permission. Offered on a *Pass/No Credit* basis only. (*On demand*)

CHEM 3500. Chemistry Cooperative Education or 49ership Experience. (0) Prerequisites: Junior standing, chemistry through 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 assignment. Participating students pay a registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. (*On demand*)

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. (*Spring*)

CHEM 4090. Special Topics in Chemistry. (1-4)
Prerequisite: Consent of the instructor. Selected topics in chemistry. Lecture and/or laboratory hours will vary with the nature of the course taught. May be repeated for credit. (*On demand*)

CHEM 4095. Topics for Teachers. (1-4) Prerequisite: Consent of instructor. Selected topics in chemical education. Lecture and/or laboratory hours will vary with the nature of the course taught. May be repeated for credit. (*On demand*)

CHEM 4111. Instrumental Analysis. (4) Prerequisites: CHEM 3111, 3141, 3141L with a grade of C or better. 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. (*Spring*)

CHEM 4121. Advanced Inorganic Chemistry. (4)
Prerequisites: CHEM 3142, 3142L with a grade of C or better. Theoretical inorganic chemistry including the application of physicochemical principles to the study of inorganic systems. Laboratory work involves inorganic preparations and characterization techniques. Three lecture hours and one laboratory period of three hours a week. (*Fall*)

CHEM 4133. Methods of Organic Structure Determination. (2) Prerequisites: CHEM 2132, 2132L with

grade of C or better. 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. (*Spring*)

CHEM 4134. Organic Reaction Mechanisms. (2)
Prerequisites: CHEM 2132, 2132L with grade of C or better. Mechanistic and theoretical topics which are beyond the scope of CHEM 2131/2132, including orbital symmetry control of organic reactions, the Hammett Equation and other linear free energy relationships, heterocyclic compounds, polycyclic aromatic compounds, organic photochemistry, carbines, nitrenes, arynes and other short lived, reactive intermediates. (*Spring*) (*Alternate years*)

CHEM 4135. Concepts and Techniques in Organic Synthesis. (2) Prerequisite 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. (*Spring*) (*Alternate years*)

CHEM 4165. Principles of Biochemistry I. (3) Prerequisite: CHEM 2132 with a grade of C or better. 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. (*Fall*)

CHEM 4165L. Principles of Biochemistry I Laboratory. (1) Prerequisite: CHEM 2132L with a grade of C or better. Prerequisite or corequisite: CHEM 4165. Physical properties of biological molecules and an introduction to experimental techniques of biochemical research. Eleven four-hour lab periods. (*Fall*)

CHEM 4166. Principles of Biochemistry II. (3)
Prerequisite: CHEM 4165 with a grade of C or better. 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. (*Spring*)

CHEM 4167. Structure and Mechanism in Protein Chemistry. (3) Prerequisites: CHEM 4165, and either CHEM 4166 or BIOL 4171, or consent of the instructor. Examination of structures, properties, and functions of proteins, enzyme catalysis, and bioenergetics, emphasizing underlying mechanistic chemical and biochemical principles. (*Spring*) (*Alternate years*)

CHEM 4171. Biochemical Instrumentation. (4)
Prerequisites: CHEM 4165 and 4165L with a grade of C or better or the consent of the Department. Modern instrumental methods used in biorelated areas such as biochemistry, biotechnology, and medical technology. Theory and practice. Potentiometry, spectrophotometry, chromatography, sedimentation, and electrophoresis. Two lecture hours and two three-hour laboratory periods per week. (*Spring*)

CHEM 4175. Physical Biochemistry. (3) Prerequisites: CHEM 4165, 4165L, 4166, and 3141 with a grade of C or better. 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. (*On demand*)

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. *(Spring) (Alternate years)*

CHEM 4200. Computational Chemistry. (4) Prerequisite (BA): CHEM 2125 or 2141 or consent of instructor. Prerequisite or corequisite (BS and MS): CHEM 3141 or consent 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. *(Fall, Spring)*

CHEM 4695. Chemistry Seminar. (1) (W) (O) Prerequisite: CHEM 3695 and senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required. B.A. chemistry majors may repeat for credit. *(Fall, Spring)*

CHEM 4696. Chemistry Seminar. (1) (W) (O) Prerequisite: CHEM 3695, CHEM 4695, B.S. chemistry major, and senior standing. Discussion of recent developments and special topics in chemistry. Written and oral reports are required. *(Fall, Spring)*

CHEM 4900. Directed Undergraduate Research. (1-4) Prerequisite: Consent of the instructor overseeing the research. 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. *(Fall, Spring, Summer)*

CHILD AND FAMILY DEVELOPMENT (CHFD)

CHFD 2111. Child Study: Interpreting Children's Behavior. (3) Growth of individuals and the forces which influence this growth. Current theories of child development with emphasis on the complex interaction between heredity and environmental factors. *(Fall, Summer)*

CHFD 2113. Infant and Early Years. (3) Examination of development from its beginnings to early childhood with emphasis on theories, research, and other data relative to infancy and the early years and implications for curriculum design. *(Fall, Summer)*

CHFD 2115. Education of the Young Child. (3) Developmental needs of children as related to group care situations, curriculum decisions, and the design of early learning environments. Emphasis on current issues, the role of the caregiver (parent and/or teacher), and the process of guiding and teaching young children. (Designed to complement Practicum II). *(Spring)*

CHFD 2412. Practicum I: Observing and Recording Children's Behavior. (3) Investigates the purposes and methods of observation of young children. Content includes observational activities, actual and simulated, individual and group. Students will observe, record, and analyze children's

physical-motor, social, emotional, moral, and cognitive development using developmental theory. (Designed as the Field Study for CHFD 2111). *(Fall)*

CHFD 2416. Practicum II: The Child and the Community. (3) A supervised practicum with placements in settings depicting care and educational learning experiences for children. Emphasis on program components, the evaluation and development of materials and practices for care and education. Students spend two half-days per week in placement. (Designed as the Field Study for CHFD 2115). *(Spring)*

CHFD 3112. Approaches to Preschool Education. (3) (W) Strategies for program analysis, design, implementation, and evaluation of programs for infants and young children. *(Fall)*

CHFD 3113. Parent Education. (3) An emphasis on communication, home-school partnerships, family dynamics, and the community/school relationship. *(Spring, Summer)*

CHFD 3115. Learning and Development. (3) Examination of the relationship of learning and development with emphasis on conceptualizing child development and interpreting data related to growth and development. Specific attention to the affective, cognitive, and psychomotor domains and theories as seen in a multicultural context. *(Fall, Spring, Summer)*

CHFD 3412. The Family and the Community (Birth to 3 Years). (3) Influence of family and community on the development of infants and young children in the first three years of life is investigated through field-based experiences. Students complete an intensive internship in settings with children of typical and atypical ability. Family contact and parent interaction are emphasized. *(Fall)*

CHFD 3416. Internship in Child and Family Development. (12) Intensive work with children and families in the field planned by student and advisor with focus on integration of theory and practice. *(Spring)*

CHFD 3619. Senior Seminar in Child and Family Development. (3) (O) A synthesizing course of study focusing on review, compilation, analysis, and evaluation of the literature, research, and experiences relevant to the student's area of focus. Students will present a plan of action/study for approval prior to registration for this semester. *(Spring)*

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. *(Fall, Spring, Summer)*

CHFD 4000. Topics in Child and Family Development. (1-6) May include classroom and/or clinical experiences in the content area. With Department approval, may be repeated for credit for different topics. *(Fall, Spring, Summer)*

CHFD 4410. Student Teaching/Seminar: B-K Child and Family Development. (15) (O) Prerequisites: 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

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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. *(Fall, Spring)*

CHINESE (CHNS)

CHNS 1201. Elementary Chinese I. (4) Fundamentals of the Chinese language, including speaking, listening comprehension, reading, and writing. *(Fall)*

CHNS 1202. Elementary Chinese II. (4) Prerequisite: CHNS 1201 or permission of the Department. Fundamentals of the Chinese language, including speaking, listening comprehension, reading, and writing. *(Spring)*

CHNS 2201. Intermediate Chinese I. (4) Prerequisite: CHNS 1202 or permission of the Department. Review of grammar, with conversation and composition. *(Fall)*

CHNS 2202. Intermediate Chinese II. (4) Prerequisite: CHNS 2201 or permission of the Department. Continued review of grammar, conversation, and composition. *(Spring)*

CRIMINAL JUSTICE (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. *(Fall, Spring)*

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. *(Fall, Spring, Summer)*

CJUS 2102. Ethics and the Criminal Justice System. (3) The study of applied and professional ethics and ethical issues in the administration of justice. *(On demand)*

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. *(On demand)*

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. *(Yearly)*

CJUS 3000. Topics in Criminal Justice. (3) Prerequisite: CJUS 1100. Specialized criminal justice topics. May be repeated for credit. *(On demand)*

CJUS 3100. Criminal Justice Theory. (3) REQUIRED COURSE FOR MAJORS AND MINORS. This course provides students with 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. *(Fall, Spring)*

CJUS 3101. Research Methods in Criminal Justice. (4) (W) REQUIRED COURSE FOR MAJORS. Prerequisite: CJUS 1100, STAT 1222, declared Criminal Justice major, and junior standing. Research designs, data collection, and data analysis relevant to criminal justice. *(Fall, Spring)*

CJUS 3102. American Criminal Courts. (3) Prerequisite: CJUS 1100. Analysis of the court component of criminal justice with emphasis on social science literature concerning prosecutors, defense attorneys, judges, juries, and court reform policies. *(Fall, Spring)*

CJUS 3110. Criminal Justice and the Law. (3) 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. *(Fall, Spring)*

CJUS 3111. Criminal Procedure. (3) Examines the rules that govern everyday operation of the criminal justice system from investigation to appeal. *(Yearly)*

CJUS 3112. Famous Criminal Trials of the Twentieth Century. (3) Prerequisites: Introduction to Criminal Justice (CJUS 1100) and at least junior standing or with permission of instructor. This course is a study of various American criminal trials from 1900-1999, and its purpose is to review specific cases and determine their effect upon, and reflection of, American society and/or culture at the time. Some of the cases discussed may include Sacco and Vanzetti, Scottsboro Boys, Chicago 7, and Dr. Jeff MacDonald. *(Yearly)*

CJUS 3120. The Juvenile Offender. (3) Measurement of juvenile delinquency, explanations of delinquent behavior and policies intended to both prevent and respond to delinquent behavior. *(On demand)*

CJUS 3121. Juvenile Law. (3) Statutory and case law relating to juveniles with special emphasis on the North Carolina Juvenile Code. *(On demand)*

CJUS 3130. The Administration of Criminal Justice. (3) (W) (O) Examines major organizational theories and administrative functions with direct application to criminal justice agencies. *(Yearly)*

CJUS 3132. Interviewing in Criminal Justice. (3) (O) This course 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. *(Yearly)*

CJUS 3141. Law Enforcement Behavioral Systems. (3) Examines the issues surrounding the individual officer. Such issues include: selection, discretion, ethics, stress, the use of force, and the effects of culture. *(On demand)*

CJUS 3150. Community Corrections. (3) 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. (*Yearly*)

CJUS 3151. Institutional Corrections. (3) Structure, functions, and effectiveness of correctional institutions. Emphasis is on the history of corrections, classification of offenders, institutionalization, treatment programs, juvenile training schools, and the future of corrections. (*Yearly*)

CJUS 3152. Correctional Law. (3) Development, substance and operationalization of the law of corrections. (*Alternate years*)

CJUS 3153. Juvenile Corrections. (3) Examination of community-based and institutional correctional programs for juveniles and analysis of the effectiveness of these programs. (*On demand*)

CJUS 3200. Security and Loss Prevention. (3) Overview of the field of private security and loss prevention with emphasis on current legislation, loss prevention, risk management, and security countermeasures. (*Yearly*)

CJUS 3210. Problems and Decisions in Criminal Justice. (3) (W) Prerequisites: Junior standing and consent of the Department. Evaluation of criminal justice policy and decision-making. (*On demand*)

CJUS 3220. The Criminal Offender. (3) Examines the research, theory, and practice of criminal behavior focusing primarily on interaction of the offender with social-environmental factors. (*On demand*)

CJUS 3400. Criminal Justice Practicum. (1-6) Prerequisite: CJUS 1100 and consent of the 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. (*Fall, Spring*)

CJUS 3800. Directed Individual Study. (1-4) Prerequisite: junior standing and consent of the Department. Special problems. May be repeated for credit. (*Pass/No Credit grading*) (*Fall, Spring*)

CJUS 4000. Topics in Criminal Justice. (1-6) (O) Prerequisite: Consent of the Department. Specialized criminal justice topics. May be repeated for credit. (*Pass/No Credit grading* when taught as "Movies and the Portrayal of Crime and Justice.") (*Fall, Spring*)

CJUS 4101. Drugs, Crime and the Criminal Justice System. (3) Use of drugs and their relationship to crime, including the impact of drugs on the individual and the criminal justice system. (*On demand*)

CJUS 4103. International Criminal Justice. (3) Prerequisite: 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. (*On demand*)

CJUS 4160. Victims and the Criminal Justice System. (3) Relationship between victims of crime and the criminal justice system. Specific topics include an analysis of the

characteristics of crime victims, victim reporting and nonreporting 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. (*On demand*)

CJUS 4161. Violence and the Violent Offender. (3) 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. (*On demand*)

CJUS 4162. Seminar on Sexual Assault. (3) (O) This course provides a comprehensive and systematic, critical examination of sexual exploitation in the United States. Topics include: historical and legal perspectives; theories of causation; empirical evidence and practical policy implications in the areas of rape, child sexual abuse, and incest; domestic violence; pornography; sexual harassment, nuisance and dangerous obsessions; and serial killing. A reliance on guest speakers at the local, state, national and international levels greatly diversify this course (*Yearly*)

CJUS 4400. Research Practicum. (3) Prerequisites: CJUS 3100 and CJUS 3101. Development, analysis and presentation of independent research under the supervision of a faculty member. Graduate students are encouraged to register for CJUS 6800. (*Fall, Spring, Summer*)

COMMUNICATION STUDIES (COMM)

COMM 1101. Public Speaking. (3) (O) 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. (*Fall, Spring, Summer*) (*Evenings*)

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. (*Summer only*)

COMM 2100. Introduction to Communication Theory. (3) 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. (*Fall, Spring*) (*May not be taken more than twice.*)

COMM 2101. Introduction to Rhetorical Theory. (3) 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. (*Fall, Spring*)

COMM 2102. Advanced Public Speaking. (3) Prerequisite: COMM 1101 or permission of the instructor. Advanced theory and practice of speaking in public. Research, composition, and delivery of various types of speeches and presentations. (*Fall, Spring*)

COMM 2103. Argumentation and Debate. (3) Introduction to the basic theory and skills of argumentation and debate. Assumptions of argumentation, evidence, reasoning,

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argument construction, cross-examination, refutation, and ethics included. *(Fall)*

COMM 2105. Small Group Communication. (3) 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 leadership skills. *(Fall, Spring, Summer)*

COMM 2107. Interpersonal Communication. (3) 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. *(Fall, Spring)*

COMM 2110. Women and the Media. (3) Crosslisted as WMST 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. *(Fall)*

COMM 2120. Black Images in the Media. (3) Crosslisted as AAAS 2105. Examination of African-American images projected through electronic and print media, historically and currently. *(Yearly)*

COMM 2145: Principles of Public Relations. (3) Prerequisite: COMM 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. *(Fall, Spring)*

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 the major advisor. *(On demand)*

COMM 3100. Communication Research Methods. (3) (W) Prerequisites: COMM 2100 and STAT 1220 or 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. *(Fall, Spring)*

COMM 3101. Persuasion. (3) Prerequisite: 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. *(Fall, Spring)*

COMM 3110. Gender and Communication. (3) Crosslisted as WMST 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. *(Spring)*

COMM 3115. Health Communication. (3) Prerequisite: COMM 2100. This course is designed to provide a broad introduction to human communication in a health-care context. Emphasis will be on issues of social support, patient-health professional/caregiver interaction,

organizational culture, planning health promotion campaigns, and cultural conceptions of health and illness. *(Spring)*

COMM 3120. Communication and Mass Media. (3) Prerequisite: COMM 2100. 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. *(Fall, Spring)*

COMM 3121. Mass Communication and Society. (3) Examines important issues involving mass communication. Critical study of the effect mass communication exerts on society. *(On demand)*

COMM 3130. Communication and Public Advocacy. (3) Prerequisite: COMM 2100. 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. *(Fall, Spring)*

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. *(On demand)*

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. *(Fall)*

COMM 3136. Leadership, Service, and Ethics. (3) The focus of this course is on leadership issues facing our society, the role of values and ethics in leadership, and servant leadership. *(Fall, Spring)*

COMM 3141. Organizational Communication. (3) Prerequisite: COMM 2100. Examines the importance of the operation of communication processes within organizations and between organizations and their environments. *(Fall, Spring)*

COMM 3245. Public Relations Writing. (3) Prerequisites: 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. *(Fall, Spring)*

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. Can be repeated four times. No more than four hours of COMM 3403 may be used toward requirements for the minor. *(Fall, Spring)*

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. Three hours of COMM 3880 may be used toward the minor

with prior approval of the Departmental Chairperson. (*Fall, Spring, Summer*)

COMM 4050. Topics in Communication Studies. (3) Timely and important areas relevant to communication studies. May be repeated for credit with permission of the major advisor. (*On demand*)

COMM 4101. Media and the Law. (3) Prerequisite: At least junior standing or consent 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. (*Fall, Spring*)

COMM 4102. Federal Interpretation of the First Amendment. (3) Prerequisite: At least junior standing or consent 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. (Cross listed with POLS 3102.) (*On demand*)

COMM 4141. Advanced Organizational Communication. (3) Prerequisite: COMM 3141. 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. (*Fall, Spring*)

COMM 4145. Communication Campaigns. (3) Prerequisites: COMM 2145 and 3245. 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 class is structured and run in a manner similar to a professional public relations agency with students assuming appropriate agency roles. May be repeated once. (*Fall, Spring*)

COMM 4147. International Public Relations. (3) Prerequisite: COMM 3145. Course 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. (*Yearly*)

COMM 4410. Professional Internship. (3 or 6) Prerequisites: Junior or Senior standing, Communication Studies majors or minors, Journalism minors, 2.0 GPA in all course work 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. With permission of the student's advisor and the Communication Studies Internship Coordinator, the course may be repeated for credit in a different internship placement. (*Pass/No Credit*) (*Fall, Spring, Summer*)

DANCE (DANC)

DANC 1103. Introduction to Dance. (1) Prerequisite: Non-

majors only. Studio experience with movement characteristics of ballet, modern dance, and jazz dance for the beginner. Three contact hours. (*On demand*)

DANC 1201. Contemporary Dance Techniques, Style and Theory I. (4) Prerequisite: Dance major or minor or permission of instructor. Movement training, including ballet and modern dance and incorporating basic principles of anatomy and kinesiology. 8 contact hours. (*Fall*)

DANC 1202. Contemporary Dance Technique, Style and Theory II. (4) Prerequisite: DANC 1201, or consent of instructor. Continuation of DANC 1201 which incorporates basic music fundamentals and materials for dancers. 8 contact hours. (*Spring*)

DANC 1212. Ballet I. (2) Fundamentals of ballet technique, barre and floor work. May be repeated for credit. Three contact hours. (*Fall, Spring*) (*Evenings*)

DANC 1213. Ballet II. (2) Prerequisite: DANC 1212 or consent of instructor. Continuation of DANC 1212. May be repeated for credit. Three contact hours. (*Fall, Spring*) (*On demand*)

DANC 1214. Modern Dance I. (2) Combination of improvisation, elementary modern styles. May be repeated for credit. Three contact hours. (*Fall, Spring*) (*Evenings*)

DANC 1215. Modern Dance II. (2) Prerequisite: DANC 1214 or consent of instructor. Continuation of DANC 1214. May be repeated for credit. Three contact hours. (*Fall, Spring*) (*On demand*)

DANC 2201. Contemporary Dance Technique, Style and Structure III. (3) Prerequisite: DANC 1202, or consent of instructor. Higher level movement training which includes ballet and modern dance. Six contact hours. (*Spring*)

DANC 2202. Contemporary Dance Technique, Style and Structure IV. (3) Prerequisite: DANC 2201 or consent of instructor. Continuation of DANC 2201. May be repeated for credit with not more than six hours applied toward required dance electives. Six contact hours. (*Fall*)

DANC 2216. Elements of Dance Composition. (3) Prerequisites: DATH 1100, 1200, and DANC 1201, or consent of instructor. Exploration of fundamental elements and concepts for composing dance, dance/theatre, and performance art works. Four contact hours. (*Spring*)

DANC 2222. Ballet III. (2) Prerequisite: DANC 1213 or consent of instructor. Intermediate ballet; barre and centerwork. May be repeated for credit. Three contact hours. (*Spring*)

DANC 2223. Ballet IV. (2) Prerequisite: DANC 2222 or consent of instructor. A continuation of DANC 2222. May be repeated for credit. Three contact hours. (*Fall*)

DANC 2224. Modern Dance III. (2) Prerequisite: DANC 1215 or consent of instructor. Intermediate modern dance technique. May be repeated for credit. Three contact hours. (*Spring*)

DANC 2225. Modern Dance IV. (2) Prerequisite: DANC 2224 or consent of instructor. A continuation of DANC 2224.

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May be repeated for credit. Three contact hours. *(Fall)*

DANC 2226. Jazz Dance I. (2) Traditional jazz dance style. May be repeated for credit. Three contact hours. *(Fall, Spring)*

DANC 2227. Jazz Dance II. (2) Contemporary jazz dance styles. May be repeated for credit. Three contact hours. *(Fall, Spring)*

DANC 3101. Dance History I. (3) Historical and cultural influences affecting the development of dance in the 20th century. *(Spring) (Alternate years)*

DANC 3102. Dance History II. (3) Historical and cultural developments of theatrical dance from the Renaissance to the 20th century. *(Fall, Spring) (Alternate years)*

DANC 3201-3202. Professional Training Certificate in Dance. (8) Prerequisite: Audition and DANC 2201 or permission of Department Chair. Both courses 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. *(Fall, Spring)*

DANC 3230. Choreography. (3) Prerequisites: DANC 2201, 2216. Methods and sources for dance composition, culminating in creative experience. Four contact hours. *(Fall)*

DANC 3467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Dance. (15) (O) Prerequisite: approved application for student teaching; senior status; completion of professional education requirements; grades of C or better 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. *(Fall, Spring)*

DANC 3691. Individual Project. (6) Prerequisite: Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

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. *(On demand)*

DANC 4110. Dance Criticism. (3) (W) Prerequisite: DANC 1101 or DANC 3101. Twentieth century dance forms are used as a basis for discussion and written commentary. *(Spring) (Alternate years)*

DANC 4201-4202. Professional Training Certificate in Dance. (8) Prerequisite: DANC 3202 and audition or permission of Department Chair. Both courses must be taken sequentially during the same academic year. Continuation of DANC 3201-3202 with emphasis on allegro vocabulary, technical precision of complex combinations and advanced performance work, culminating on the undergraduate "Professional Training Certificate in Dance."

DANC 4227/5227. Dance Education Methods I. (3) Prerequisites: DANC 1202 or consent of instructor. Co-requisite: DANC 4227L/5227L. Creative movement theories; techniques and skills for teaching the elementary school child. *(Fall)*

DANC 4227L/5227L. Elementary Clinical Experience. (1) Co-requisite: DANC 4227/5227. Observation and teaching in an elementary school setting. Application of methodologies introduced in DANC 4227/5227. (2 contact hours) *(Fall)*

DANC 4257/5257. Dance Education Methods II. (3) Prerequisite: DANC 1202 or consent of instructor. Co-requisite: DANC 4257L/5257L. Experiences in techniques for teaching dance in elementary schools. *(Spring)*

DANC 4257L/5257L. Secondary Clinical Experience. (1) Co-requisite: DANC 4257/5257. Observation and teaching in a secondary school setting. Application of methodologies introduced in DANC 3257. (2 contact hours) *(Spring)*

DANC 4400/5400. Internship in Dance (3-6) Prerequisite: GPA of at least 2.5, junior status, 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/Fail basis. *(Fall, Spring, Summer)*

DANC 4601. Individual Project. (3) Prerequisite: Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

DANCE AND THEATRE (DATH)

DATH 1100. Exploration of Voice and Movement. (3) (O) Creative and effective communication of ideas through the use of the body and voice. Will include physical and vocal technique, improvisation and group problem solving. Four contact hours. *(Fall, Spring)*

DATH 1200. Elements of Design for the Stage. (3) Elements and principles of design in relation to the performer, performance and performance space with emphasis on developing perceptual and communication skills through exposure to and analysis of a diverse selection of dance, theatre, and related-performance images. *(Spring)*

DATH 1600. Cornerstone Seminar. (1) Prerequisite: Restricted to dance and theatre majors and minors or permission of instructor. Reading, viewing, writing and discussion focusing on the functions of dance and theatre within society including contemporary trends and current research/creative activity. Two contact hours. Graded on a Pass/Fail basis. *(Fall)*

DATH 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. *(Fall, Spring)*

DATH 2402. Performance Practicum. (1) Prerequisite: Audition. Practical application of performance techniques

within a production setting, including auditions, rehearsals, and performances. May be repeated for credit. *(Fall, Spring)*

DATH 3600. Capstone Seminar. (1) Prerequisites: DATH 1600 and senior standing. Synthesis, integration, and application of theoretical and experiential study in dance and theatre through individual/group designed seminar topic. 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/Fail basis. *(Fall)*

ELECTRICAL AND COMPUTER ENGINEERING (ECGR)

ECGR 2103. Computer Utilization in C++. (3) An introduction to the use of computers and computing methods to solve engineering problems. Structures and object-oriented programming design using C++. *(Fall, Spring) (Evenings)*

ECGR 2111. Network Theory I. (3) Co-requisites: ECGR 2155, MATH 2171, PHYS 2102, or permission of the Department. Prerequisite: MATH 1242 and PHYS 2101. Introduction to Kirchhoff'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. *(Fall, Spring) (Evenings)*

ECGR 2112. Network Theory II. (3) Prerequisites: ECGR 2111, MATH 2171, and PHYS 2102, all with a grade of C or better. 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. *(Fall, Spring, Summer) (Evenings)*

ECGR 2155. Logic and Networks Laboratory. (1) (W) Prerequisites: MATH 1241 and 1242. Corequisites: ECGR 2111 and 2181 or permission of Department. Network measurements and applications, experimental logic design; introduction to laboratory equipment and techniques. *(Fall, Spring, Summer) (Evenings)*

ECGR 2156. Instrumentation and Networks Laboratory. (1) (W) Prerequisite: ECGR 2155. Corequisite: ECGR 2112 or permission of the Department. Network measurements, applications, and instrumentations. *(Fall, Spring, Summer) (Evenings)*

ECGR 2161. Basic Electrical Engineering I. (3) Prerequisite: PHYS 2101. Fundamental concepts and methods of analysis of D.C. and A.C. circuits, elementary operation of electronic devices. Not open to electrical Engineering majors. *(Fall) (Evenings)*

ECGR 2181. Logic System Design I. (3) Prerequisite: MATH 1241 or permission of the Department. Corequisite: ECGR 2155 or permission of the Department. Introduction to Boolean algebra; mixed logic; design of combinational circuits; introduction to sequential systems; MSI building blocks; includes laboratory design projects. *(Fall, Spring)*

ECGR 2252. Electrical Engineering Design I. (2) (O) Prerequisites: ECGR 2111 and ECGR 2155 or equivalents.

Co-requisites: ECGR 2112, 2181 and 2156 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. *(Fall, Spring)*

ECGR 2255. Digital Design Laboratory. (2) Prerequisites: ECGR 2155 and ECGR 2181. Experiments in Digital Systems Design including the use of Programmable Logic Devices. *(Fall, Spring)*

ECGR 3090. Special Topics in Electrical Engineering. (1-4) Prerequisite: Permission of the 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. *(On demand)*

ECGR 3111. Signals and Systems. (3) Prerequisite: ECGR 2112 with a grade of C or better. 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. *(Fall, Spring)*

ECGR 3112. System Analysis II. (3) Prerequisite: ECGR 3111 with a grade of C or better. A continuation of ECGR 3111 emphasizing system response characteristics in the frequency domain. Introduction to techniques of analysis of continuous and discrete systems. *(Spring, Summer)*

ECGR 3121. Introduction to Electromagnetic Fields. (3) Prerequisites: ECGR 2112 with a grade of C or better. 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. *(Fall, Spring)*

ECGR 3122. Electromagnetic Waves. (3) Prerequisite: ECGR 3121 with a grade of C or better. 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. *(Spring, Summer)*

ECGR 3123. Data Communications and Networking. (3) Prerequisites: ECGR 2181, ECGR 2111. An introduction to data communications, including transmission media, signal encoding, link control, and multiplexing. Concepts of networking including protocols, LAN, WAN, and wireless networks *(Spring)*

ECGR 3131. Fundamentals of Electronics and Semiconductors. (3) Prerequisite: ECGR 2112 with a

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grade of C or better. 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. *(Fall, Spring)*

ECGR 3132. Electronics. (3) Prerequisites: ECGR 3131 with a grade of C or better. Low and high-frequency analysis of transistor amplifiers. Multistage and feedback amplifier design. Stability and oscillation. Operational amplifier design and applications. *(Spring, Summer)*

ECGR 3133. Solid State Microelectronics I. (3) Prerequisites: ECGR 3121, PHYS 3141, or permission of the 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. *(Fall)*

ECGR 3134. Industrial Electronics. (3) Prerequisite: ECGR 3132 with a grade of C or better. High power solid state circuits. Topics include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits. *(Spring)*

ECGR 3142. Electromagnetic Devices. (3) Prerequisite: ECGR 3121 with a grade of C or better. 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. *(Spring, Summer)*

ECGR 3155. Systems and Electronics Laboratory. (1) (W) Prerequisites: ECGR 2112, and 2156. Corequisites: ECGR 3111 and 3131, or permission of the Department. Systems and signals measurements and applications; electronic circuits. *(Fall, Spring, Summer) (Evenings)*

ECGR 3156. Electromagnetic and Electronic Devices Laboratory. (1) (W) Prerequisite: ECGR 3155. Corequisites: ECGR 3132, or permission of the Department. Measurements and applications of electromagnetic and solid state devices. *(Fall, Spring, Summer) (Evenings)*

ECGR 3157. Electrical Engineering Design II. (2) (O) Corequisites: ECGR 3111 and 3131 or permission of the Department. Prerequisites: ECGR 2112, 2252 and 2181. 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. *(Fall, Spring)*

ECGR 3159. Professional Practice. (2) Prerequisite: ENGR 3295. 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. *(Spring, Summer)*

ECGR 3181. Logic System Design II. (3) Prerequisite: ECGR 2181 with a grade of C or better or permission of the

Department. Digital systems design and test. Top-down design of multi-input based controller systems; programmable logic devices. *(Spring, Summer)*

ECGR 3182. Digital Electronics. (3) Prerequisites: ECGR 3131 and 3181, both with a grade of C or better. Bipolar and field-effect transistors, switching characteristics, device models, logic families. Memory devices, one-shots, Schmitt triggers, logic gates, drivers. Use of logic analyzers. *(Spring, Summer)*

ECGR 3183. Computer Organization and Programming Languages. (3) Prerequisite: ITCS 1215 and ECGR 3181. Introduction to key concepts in computer organization. Microprocessor design, assembly language programming, C programming, input/output, interrupts and traps, structured program development, parsers/interpreters/compiler. Emphasis on application of these concepts to computer engineering systems including microcomputers and embedded systems. *(Fall)*

ECGR 3253. Senior Design I. (2) (W) (O) Corequisite and Prerequisites: Senior standing in engineering, ECGR 2155, 2156, 3111, and 3131, all with a grade of C or better. A project-oriented course stressing the planning and design of experiments to support the student's project. Formation of the design problem and specification. *(Fall, Spring)*

ECGR 3254. Senior Design II. (3) (W) (O) Prerequisite: ECGR 3253 with a grade of C or better. A continuation of ECGR 3253 consisting of project development and analysis, culminating in a written and oral presentation. *(Fall, Spring)*

ECGR 3695. Electrical Engineering Cooperative Education Seminar. (1) Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester. This program is coordinated by the University Career Center. *(Fall, Spring, Summer)*

ECGR 3890. Individualized Study. (1-3) Prerequisite: Permission of the 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. *(On demand)*

ECGR 3990. Undergraduate Research. (1-4) Prerequisite: Permission of the 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. *(On demand)*

ECGR 4101. Embedded Systems. (3) Prerequisite: ITCS 3182 or ECGR 3183. 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. *(Fall)*

ECGR 4102. Engineering Simulation. (3) Crosslisted as ECGR 5102. Prerequisite: ECGR 2103 or permission of the Department. A wide range of simulation related topics will be 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. *(On demand)*

ECGR 4103. Applied Computer Graphics. (3) Crosslisted as ECGR 5103. Prerequisite: Permission of the Department. Interactive graphics; raster, character, vector, graphics, display technologies; rotation, scaling, translating of graphics image; image processing/enhancement; feature extraction; 3-D graphics; hidden lines. *(On demand)*

ECGR 4104. Computational Methods in Power Systems. (3) Crosslisted as ECGR 5104. Prerequisite: ECGR 4142 or permission of the 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. *(On demand)*

ECGR 4111. Control Systems Theory I. (3) Prerequisite: ECGR 3111 with a grade of C or better. 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. *(Fall)*

ECGR 4112. Control Systems Theory II. (3) Prerequisite: ECGR 4111 with a grade of C or better. 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. *(Spring)*

ECGR 4113. Modeling and Analysis of Dynamic Systems. (3) Prerequisite: ECGR 3111 or permission of the 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. *(On demand)*

ECGR 4121. Antennas. (3) Prerequisite: ECGR 3122 with a grade of C or better or permission of the 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. *(On demand)*

ECGR 4122. Acoustics. (3) Prerequisite: ECGR 3122 with a grade of C or better. Vibrations and simple vibrating systems; radiating systems; plane waves of sound, dynamic analogies, microphones and other acoustic transducers; acoustic measurements. *(On demand)*

ECGR 4123. Analog and Digital Communication. (3) Prerequisite: ECGR 3111 with a grade of C or better. Analysis and transmission of signals, including analog communication systems (amplitude and frequency modulation, effect of noise); digital communications systems (pulse code modulation, data transmission systems phase-

shift keying, and frequency-shift keying, effect of noise). *(Fall) (Evenings)*

ECGR 4124. Digital Signal Processing. (3) Prerequisite: ECGR 3111 with a grade of C or better. 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. *(Spring)*

ECGR 4125. Foundation of Optical Engineering. Crosslisted as ECGR 5125. Prerequisites: ECGR 3121 and PHYS 3141, both with a grade of C or better or permission of the 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 networks, basic Fourier optics, and methods in optical signal processing. Signal and data processing, principles of integrated optics. *(Fall)*

ECGR 4131. Linear Integrated Electronics. (3) Prerequisite: ECGR 3132 with a grade of C or better. Design of linear integrated circuits utilizing bipolar and MOS devices. Application in linear amplifier design, control, and processing of analog signals. *(Fall)*

ECGR 4132. Analog Integrated Circuits Design. (3) Crosslisted as ECGR 5132. Prerequisite: ECGR 4131 with a grade of C or better or Permission of the Department. Topics include analog MOS modeling, design of current mirrors, references, and operational amplifiers. Both hand analysis and SPICE simulation utilized. *(Spring)*

ECGR 4134. Solid State and Semiconductor Microelectronics II. (3) Prerequisites: ECGR 3133 with a grade of C or better or permission of the 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. *(Spring)*

ECGR 4135. Physical Electronics. (3) Crosslisted as ECGR 5135. Prerequisite: ECGR 3122 or PHYS 3181 or permission of the 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. *(On demand)*

ECGR 4137. Device Electronics for Integrated Circuits. (3) Crosslisted as ECGR 5137. Prerequisites: ECGR 3132 with a grade of C or better or permission of the 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. *(Fall) (Evenings)*

ECGR 4138. Electronic Thin Film Materials and Devices. (3) Crosslisted as ECGR 5138. Prerequisite: ECGR 3132 or 3133, both with a grade of C or better or permission of the 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,

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silicide formation, light emitting diodes (LED) and lasers, and doping of semiconductors. *(Fall)*

ECGR 4139. Digital Communication Systems. (3) Crosslisted as ECGR 5139. Prerequisites: ECGR 2181 and 3131. Topics include digital data transmission systems, signal and system representation, digital system performance characterization, pulse code modulation, and statistical communications theory. *(On demand)*

ECGR 4140. Introduction to VLSI Processing. (3) Crosslisted as ECGR 5140. Prerequisite: permission of the Department. Microelectronic fabrication; relevant materials, processes, and tools; fabrication of a simple structure in the VLSI clean room/lab. *(Fall)*

ECGR 4141. Power System Analysis I. (3) Prerequisite: ECGR 3142 with a grade of C or better. Representation of power system components for analysis studies. Transmission line parameters. Network equations. Load flow analysis and numerical methods. *(Fall)*

ECGR 4142. Power System Analysis II. (3) Prerequisite: ECGR 4141 with a grade of C or better. Economic operation of power systems. Short circuit studies. Symmetrical components. Transient stability analysis. *(Spring)*

ECGR 4143. Electrical Machinery. (3) Prerequisite: ECGR 3142 with a grade of C or better. Advanced theory of transformers and rotating. Machines; harmonic and saturation effects on machine performance. Unbalanced operation and transient conditions. *(On demand)*

ECGR 4146. Introduction to VHDL. (3) Crosslisted as ECGR 5146. Prerequisites: ECGR 3181 with a grade of C or better and knowledge of a computer language, or permission of the 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. *(Fall)*

ECGR 4161. Introduction to Robotics. (3) Prerequisites: ECGR 2103 or MEGR 2101. 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 (dual-listed with MEGR 4127). *(Fall)*

ECGR 4162. Control of Robotic Manipulators. (3) Crosslisted as ECGR 5161. Prerequisites: ECGR 4161 and 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 (dual-listed with MEGR 5128). *(Spring)*

ECGR 4165. Laser Electronics. (3) Crosslisted as ECGR 5165. Prerequisites: ECGR 3132 and PHYS 3141, both with a grade of C or better or permission of the Department. Laser oscillation, excitation, amplification, dispersion, and absorption. Basic principles of quantum electronics, general characteristics of lasers, semiconductor lasers, solid state lasers, gas lasers, laser switching and modulation, CW and

pulsed lasers which includes, Q-switching, mode locking, and other techniques for short pulse generation. Basic spectroscopy, nonlinear effects, laser processing, and laser. *(Spring)*

ECGR 4181. Computer Arithmetic. (3) Crosslisted as ECGR 5181. Prerequisite: permission of the Department. Principles, architecture, and design of fast two operand adders, multi-operand adders, standard multipliers and dividers. Cellular array multipliers and dividers. Floating point processes, BCD and excess three adders, multipliers and dividers. *(On demand)*

ECGR 4182. Digital System Testing. (3) Prerequisite: ECGR 3181 with a grade of C or better or permission of the Department. System testing; Boolean difference; D-algorithm; checking experiments; redundancy, computer-aided digital test systems. *(Spring)*

ECGR 4183. Network Synthesis. (3) Crosslisted as ECGR 5113. Prerequisite: ECGR 4114. 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. *(On demand)*

ECGR 4184. Device Characterization, Parameterization and Modeling. (3) Crosslisted as ECGR 5114. Prerequisite: ECGR 3132 permission of the 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. *(On demand)*

ECGR 4185. Advanced Electromagnetic Field Theory. (3) Crosslisted as ECGR 5123. Prerequisite: ECGR 3122 or permission of the Department. Maxwell's equations and propagation. Properties of guided and surface waves. Wave properties of light; physical and fiber optics. *(On demand)*

ECGR 4186. Foundation of Optical Engineering. (3) Same as ECGR 5125. Prerequisites: ECGR 3121 and PHYS 3141 or permission of the 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 networks, basic Fourier optics, and methods in optical signal processing; signal and data processing, principles of integrated optics. *(Fall)*

ECGR 4187. Data Communications. (3) Crosslisted as ECGR 5187. Prerequisite: Permission of the Department. Principles of data communication; computer communications architecture (layering) with emphasis on the physical layer and data link layer, transmission media; analog and digital signal representation; data transmission basics; Shannon's theorem; error detection/correction; data compression; point-to-point protocols; multiplexing. *(Fall)*

ECGR 4188. Advanced VLSI Systems Design. (3) Crosslisted as ECGR 5134. Prerequisite: ECGR 5133. 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. *(Spring)*

ECGR 4190. Power Generation: Operation and Control. (3) Crosslisted as ECGR 5142. Prerequisite: ECGR 4142 or permission of the 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. (Fall) (Alternate years) (Evenings)

ECGR 4191. Dynamic and Transient Analysis of Power Systems. (3) Crosslisted as ECGR 5143. 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. (Spring) (Alternate years) (Evenings)

ECGR 4193. Foundation of Optical Engineering. (3) Crosslisted as ECGR 5125. Prerequisites: ECGR 4125 or permission of Department. Overview of optical fiber, signal degradation in fiber, optical source, optical detectors, optical receiver, optical transmitter, optical network, signal processing, and signal distribution through DWDM and DWDDM. This course also addresses the recent topics in optical communication and optical signal. (Fall)

ECGR 4231. Sensors & Actuators. (3) Crosslisted as ECGR 5231. Prerequisite: ECGR 3132, 3121, 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. (On demand)

ECGR 4261. Microwave Circuit Design I. (3) Crosslisted as ECGR 5261. Prerequisites: ECGR 3131; and senior/graduate standing, or permission of Department. Design and analysis of microwave devices and circuits; including microwave aspects of discrete active (i.e., field effect and bipolar transistors, etc.) and passive (i.e., microstrips, inductors, capacitors) components; device parameter extraction, using computer aided design (CAD) tools. (Fall)

ECGR 4265. Microwave Devices and Electronics. (3) Crosslisted as ECGR 5265. Prerequisites: ECGR 3122 and PHYS 2231 with grades of C or better 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. (On demand)

ECGR 4422. Random Processes and Optimum Filtering. (3) Crosslisted as ECGR 5122. Prerequisites: ECGR 3111 and STAT 3228 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. (Spring)

ECGR 4433. VLSI Systems Design. (3) Same as ECGR 5133. Prerequisite: ECGR 3131 and 3181, both with a grade of C or better or permission of the 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. (Fall) (Evenings)

ECGR 4892. Individualized Study. (1-6) Crosslisted as ECGR 5892. Individual investigation and exposition of results. May be repeated for credit. (On demand)

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 as topics vary. (On demand)

ECON 1101. Economics for Non-Majors. (3) Economic issues without emphasis on theoretical models. Contemporary economic issues such as pollution control, health care, 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. (Fall, Spring, Summer)

ECON 2101. Principles of Economics-Macro. (3) 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. (Fall, Spring, Summer) (Evenings)

ECON 2102. Principles of Economics-Micro. (3) 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. (Fall, Spring, Summer) (Evenings)

ECON 3090. Topics in Economics. (3) Prerequisite: Consent of the Department. Topics from the areas of economic theory, economic development, consumer economics, welfare economics, and current economic problems. May be repeated for credit. (On demand)

ECON 3105. Industrial Relations. (3) Prerequisite: introductory course in economics or consent of instructor. Systematic analysis of the sociological, economic, and legal forces affecting the work environment. Emphasis on labor unions and employment law. (On demand)

ECON 3106. Labor Economics. (3) Prerequisites: ECON 2101 and 2102. Economics of labor markets with emphasis on wage and employment theory, collective bargaining, and human capital theory. Historical and legal forces affecting labor markets. (On demand)

ECON 3107. Employment Law. (3) Crosslisted 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. (On demand)

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ECON 3112. Econometrics. (3) Prerequisites: ECON 2101 and 2102, MATH 1120 or 1241, STAT 1220 and INFO 2130. Econometric techniques, including simple and multiple least squares regression with problems and analyses. (*Fall, Summer*)

ECON 3114. Research Methods. (3) Prerequisites: STAT 1220, INFO 2130, and ECON 3112. Introduction to research in economics, including major sources of data and information and application of elementary research methods to economic problems. (*On demand*)

ECON 3115. Money and Banking. (3) Prerequisite: ECON 2101. The characteristics and functions of money in the modern economy, monetary theory and policy, and financial institutions. (*On demand*)

ECON 3122. Intermediate Microeconomics. (3) Prerequisites: ECON 2101 and 2102 and MATH 1120 or 1241. 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. (*Fall*)

ECON 3123. Intermediate Macroeconomics. (3) Prerequisites: ECON 2101 and 2102 and MATH 1120 or 1241. Analysis of economic aggregates with inflation, unemployment, and income determination. Keynesian, Classical, Monetarist, and supply side models. (*Spring*)

ECON 3125. Managerial Economics. (3) Prerequisites: ECON 2102, MATH 1120 or 1241, STAT 1220, and INFO 2130. Economic decisions of particular interest to business firms, e.g., demand theory and forecasting; cost analysis and pricing policies. (*Fall, Spring, Summer*) (*Evenings*)

ECON 3131. Economic History of the United States. (3) Prerequisite: ECON 1101 or 2101 or 2102. 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. (*On demand*)

ECON 3141. Health Economics. (3) Prerequisite: ECON 2102. The application of microeconomic concepts to markets for health/medical care, including issues such as health care delivery, financing, regulation, and costs. (*On demand*)

ECON 3151. Law and Economics. (3) Prerequisite: ECON 2102. 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 will be on property, contract, tort, and criminal law. (*On demand*)

ECON 3171. International Business Economics. (3) Prerequisite: ECON 2101 and 2102. 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 4172. (*On demand*)

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. Offered 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. (*Fall, Spring, Summer*)

ECON 3500. Cooperative Education or 49ership Experience. (0) Enrollment in this course is required for the Department's Cooperative Education and 49ership students during each semester they are working in the position. Restricted to majors in the Department of Economics. Participating students pay a registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. (*Fall, Spring, Summer*)

ECON 3895. Directed Individual Study. (1-3) Prerequisites: permission of the 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. (*Fall, Spring, Summer*) (*Evenings*)

ECON 4100. Mathematical Economics. (3) Prerequisites: ECON 2101 and 2102 and MATH 1120 or 1241. 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. Not available for credit in the M.S. program in Economics. (*On demand*)

ECON 4112. Econometrics II. (3) Crosslisted as ECON 6112. Prerequisite: ECON 3112 or consent of instructor. Tools of analysis are more extensive and of a greater depth than those studied in ECON 3112. Regression and correlation techniques are applied to economic and business problems derived from government and business environments. Not available for credit in the M.S. program in Economics. (*On demand*)

ECON 4116. Public Sector Economics. (3) Prerequisite: ECON 3122. Revenue and expenditure problems of governmental units, intergovernmental financial relationships and the impact of federal fiscal policy upon the American economy. (*On demand*)

ECON 4117. Business and Economic Forecasting. (3) Prerequisite: ECON 3112. 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. Not available for credit in the M.S. program in Economics. (*On demand*)

ECON 4135. Economics of Growth and Development. (3)
Prerequisite: ECON 2102. Theories of economic growth and development applied to varying economic and social systems. Emphasis on current theoretical models of technological innovation and growth. (*On demand*)

ECON 4150. Urban and Regional Economics. (3)
Prerequisite: ECON 2102. 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. (*On demand*)

ECON 4160. Economics of Transportation. (3)
Prerequisite: ECON 2102. Analysis of transportation systems. Topics include the historical development of various modes, costs and rate-making, regulation and national transportation policy. (*On demand*)

ECON 4171. Economics of International Trade. (3)
Prerequisite: ECON 3122. Theory of international trade, including determination of international trade patterns, welfare implications of international trade, economic integration, and effects of tariffs and quotas. (*On demand*)

ECON 4172. Economics of International Finance. (3)
Prerequisite: ECON 3123. 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. (*On demand*)

ECON 4177. History of Economic Thought. (3) (W)
Prerequisites: ECON 2101 and 2102. 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. (*Spring*)

ECON 4180. Industrial Organization and Public Policy. (3)
Prerequisite: ECON 3122. An examination of monopolistic competition, oligopoly, and monopoly and questions of public policy in dealing with problems created by industrial concentration. (*Spring, Summer*)

ECON 4181. Energy and Environmental Economics. (3)
Prerequisite: ECON 2102. 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. (*On demand*)

EDUCATION (EDUC)

EDUC 2100. Introduction to Education and Diversity in Schools. (3) Corequisite: SPED 2100. Social, historical, and philosophical foundations of the educating professions, the organization and various levels of education, and the

major issues in American education. Field-based activities in observing in-class and non-classroom settings: 5 hours. (*Fall, Spring, Summer*)

EDUC 2150. Human Development Across the Life Span. (3) Biological, psychological and social development throughout the life span. (*Once a year*)

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 faculty sponsors 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. (*Fall, Spring*)

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 all members of elementary, middle, or secondary classrooms, including students at risk for school failure, individuals from culturally and linguistically diverse backgrounds, gifted learners, and students with disabilities. (*Fall, Spring, Summer*)

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. (*Fall, Spring, Summer*)

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. (*On demand*)

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. (*On demand*)

ELEMENTARY EDUCATION (ELED)

ELED 3110. Instructional Design and the Use of Technology with Elementary School Learners. (3). Prerequisite: Admission to Teacher Education. Introduction to setting goals and objectives for instruction, various formats of lesson design, alignment between instructional objectives,

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activities, and assessments and the related use of technology in the development of effective and systematic learning environments; focused on current PC operating system, word processing, spreadsheet, presentation package, database, email, web browser, multimedia tools, and the Internet. *(Fall, Spring, Summer)*

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. *(Fall, Spring)*

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. *(Fall, Spring)*

ELED 3223. Teaching Social Studies to Elementary School Learners. (3) 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. *(Fall, Spring)*

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. *(Fall, Spring)*

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. *(Fall, Spring, Summer)*

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. *(Fall, Spring, Summer)*

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. *(Fall, Spring, Summer)*

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. *(Fall, Spring, Summer)*

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. *(Summer)*

ELED 4420. Student Teaching/Seminar: K-6 Elementary Education. (15) (O) Prerequisites: Completion of all other course work 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. *(Fall, Spring)*

ENGLISH (ENGL)

ENGL 1101/1102 or ENGL 1103 or their equivalents are prerequisites for all English courses at the 2000 level or above.

ENGL 1100. English as a Foreign Language. (3) Limited to students whose native language is not English who may need additional preparation before beginning the required first-year English composition courses. Does not count toward an English major or toward the General Education requirement. One may not register for ENGL 1100 before taking the English Department’s placement test for persons whose primary language is not English. *(Fall, Spring)*

ENGL 1101. English Composition. (3) Extensive practice in and discussion of composition in various forms, for different purposes, and for various audiences. Students experience writing as a means of personal growth, intellectual development, and communication. *(Fall, Spring, Summer) (Evenings)*

ENGL 1102. Writing in the Academic Community. (3) Prerequisite: ENGL 1101. Writing argumentation appropriate to inquiry in an intellectual community. *(Fall, Spring, Summer) (Evenings)*

ENGL 1103. Accelerated College Writing and Rhetoric. (3) Prerequisite: Placement by the English Department. Accelerated writing curriculum that fulfills the requirement for ENGL 1101 and 1102. *(Fall)*

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 2015, or for 2014 and 2015 together. (*On demand*)

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 2014, or for 2015 and 2014 together. (*On demand*)

ENGL 2050. Topics in English. (3) Designed to offer topics of general interest not included in other courses. May be repeated for additional credit with the approval of the English Department. Does not count toward the English major. (*Yearly*)

ENGL 2090. Topics in English. (3) Designed to offer topics of general interest not included in other courses. May be repeated for additional credit with the approval of the English Department. May count toward the English major. (*On demand*)

ENGL 2100. Writing About Literature. (3) Combined practice in writing and study of literature, emphasizing writing processes including revision. Must be completed before ENGL 3100 and other English coursework. Restricted to English majors and minors and Education majors. (*Fall, Spring, Summer*)

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. (*On demand*)

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. (*On demand*)

ENGL 2103. Masterpieces of Modern Fiction. (3) Readings in selected novels and short stories written since 1850. (*On demand*)

ENGL 2104. Major American Writers. (3) Introductory readings in six to eight authors, approximately half from the 19th century and half from the 20th century, both poetry and prose. (*On demand*)

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. (*Yearly*)

ENGL 2106. Film Criticism. (4) Introduction to film as an art form. Emphasis will be on critical theory and on critical analysis of the form and the content of different kinds of films--e.g. the narrative film, the silent film, the documentary film, etc.--drawn from the international cinema. Students will apply critical theory to the analysis of professionally made films and will have the option of making their own short films. A viewing lab is required. (*On demand*)

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. (*On demand*)

ENGL 2111. Introduction to Ancient World Literature I. (3) Reading of ancient world literature, in English translation. (*Yearly*)

ENGL 2112. Introduction to Modern World Literature. (3) Readings in modern world literature, in English and in English translation. (*Yearly*)

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, and reports, and includes formats and content common to students' own disciplines. (*Fall, Spring, Summer Evenings*)

ENGL 2126. Introduction to Creative Writing. (3) (W) This course introduces students to creative writing, including both poetry and fiction writing, assuming little or no previous creative writing experience. (*Fall, Spring, Summer*)

ENGL 2127. Introduction to Poetry Writing. (3) An introductory course for those with little experience in reading, writing, and critiquing poetry. Students will 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. (*On demand*)

ENGL 2128. Introduction to Fiction Writing. (3) An introductory course for those with little experience in reading, writing, and critiquing fiction. Students will 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. (*On demand*)

ENGL 2301. Introduction to African-American Literature. (3) Crosslisted as AAAS 2301. Prerequisites: ENGL 1101 and 1102 or 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 English Department. (*Fall, Spring*)

ENGL 3050. Topics in English. (3) Special topics not included in other courses. May be repeated for credit as topics vary. (*Yearly*)

ENGL 3100. Approaches to Literature. (3) (W) Introductory study and application of major critical

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approaches to literature, such as historical, psychological, mythological, and formalistic. Required of English major and minor. (*Fall, Spring, Summer*) (*Evenings*)

ENGL 3102. Literature for Young Children. (3) Literature for children between the ages of two and seven. Picture books, nursery rhymes, and storytelling techniques. (*Spring*)

ENGL 3103. Children's Literature. (3) Critical and historical study of children's literature, including picture books, poetry, myth, fable, folk tale, fantasy, and realistic fiction. Central to the course is the development of critical principles for assessing the literary merit of children's books. Other possible emphases: the creative process, archetypes and values in the works studied, images of childhood, children's responses to literature, and issues in children's book selection. [ENGL 3103 and/or 3104 required for English majors seeking intermediate teacher license.] (*Fall, Spring*)

ENGL 3104. Literature for Adolescents. (3) Introduction to literature for adolescents. Emphases are: (1) critical analysis and aesthetic judgment of literature; (2) study of representative examples from all major genres (poetry, fiction, and drama) as well as various subgenres (such as biography, science fiction, fantasy, and contemporary realistic juvenile fiction) that address the cognitive, emotional, and psychological needs of junior high and high school students. Students will practice applying these approaches to adolescent literature and will employ these concepts in critically selecting, evaluating, and judging books for adolescents. [ENGL 3103 and/or 3104 required for English majors seeking intermediate teacher license.] (*Yearly*)

ENGL 3110. Literature and Science. (3) (W) The works of scientists (such as Darwin, Freud, or Einstein) and their influence on literature studied along with the role of creativity, imagination, and communication in literature and science. (*On demand*)

ENGL 3112. Medieval British Literature. (3) Representative works (excluding those of Chaucer) written in Britain during the Middle Ages, especially the epic and romance, mainly studied as reflections of the medieval individual's relationship to God, society, and other individuals. An introduction to the earliest British literature as it evolved from pagan folklore under the influence of myth, fantasy, courtly convention, the new religion, foreign invasion, and transformations in language and culture. Most of the works studied in this course will be read in modern English. (*On demand*)

ENGL 3114. British Prose and Poetry of the 16th Century. (3) Major works of the Renaissance "Golden Age," including Sidney, Marlowe, Shakespeare (excluding drama). Included are satire, the pastoral romance in prose, and the many new poetic forms that continue to the present day, such as the sonnet and blank verse. (*On demand*)

ENGL 3115. The Earlier 17th Century. (3) Major writers from Bacon and Donne to the Restoration. (*On demand*)

ENGL 3123. Wit and Sensibility: 18th-century British Literature. (3) Poetry and prose in the golden age of satire, with emphasis on Dryden, Pope, Swift, and Johnson. Early

Romantic trends in the poetry of Young, Grey, and Collins. (*On demand*)

ENGL 3125. The Romantic Era, 1785-1832. (3) The development of the Romantic movement, with emphasis on the works of Wordsworth, Coleridge, and other major poets. (*On demand*)

ENGL 3126. The Victorian Era to 1870. (3) Readings in British literature of the middle of the 19th century, reflecting such cultural developments as the rise of industrialism and technology, England's global empire, the rapidly changing nature of society, the religious crisis, and the beginnings of artistic and literary revolt against the establishment. (*On demand*)

ENGL 3127. British Literature from 1870 to World War I. (3) Readings emphasizing such cultural and literary developments as realism and the impact of science, art for art's sake, problems of religious faith and of sexuality, moral and political issues relating to colonialism, British imperialism, and new techniques in art and literature. (*On demand*)

ENGL 3128. British Literature Since World War I. (3) Readings reflecting developments such as the decline of Britain as a world power, the intellectual disillusionment following World War I, the impact of psychological and social theory, and literary innovation and experimentation. (*On demand*)

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. (*Fall, Spring*)

ENGL 3140. Colonial and Early American Literature. (3) Origins of American literature, from Colonial times to Washington Irving, including such authors as Edwards, Taylor, Franklin, Crèvecoeur, Freneau, Brown. (*Alternate years*)

ENGL 3141. American Literature of the Romantic Period, 1820-1870. (3) Important writers and ideas of the period of American romanticism, from Irving through Whitman, including such authors as Poe, Emerson, Thoreau, Hawthorne, Melville. (*Yearly*)

ENGL 3142. American Literature of the Realistic and Naturalistic Periods, 1870-1920. (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. (*Yearly*)

ENGL 3143. Modern American Literature, 1920 to Present. (3) Important writers and ideas of modern American literature, including such authors as Faulkner, Eliot, Hemingway, Cummings. (*On demand*)

ENGL 3156. Native American Indian Literature. (3) Introduction to American Indian Literature, ranging from oral traditions through contemporary writers. (*On demand*)

ENGL 3200. Writing in the Discipline of English. (3) (W) Prerequisite: English major or minor, or permission of the Department. Intensive practice in writing persuasion and

argument in the discipline of English, with emphasis on techniques in research and documentation based on selected texts in literature, rhetoric/writing, or linguistics/language. Restricted to English majors and minors, except through permission of the Department. (*On demand*)

ENGL 3300. American Literature Survey. (3) This course 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 will be addressed. Required of English majors. (*Fall, Spring, Summer, Evenings*)

ENGL 3301. British Literature Survey I. (3) This course surveys British literature from the Medieval period to the Renaissance. Major authors and literary movements as well as important ideas and cultural issues will be addressed. Required of English majors. (*Fall, Spring, Summer, Evenings*)

ENGL 3302. British Literature Survey II. (3) This course surveys British literature from the Neoclassical to the Modern period. Major authors and literary movements, as well as important ideas and cultural issues will be addressed. Required of English majors. (*Fall, Spring, Summer, Evenings*)

ENGL 3852. Independent Study. (1-3) Prerequisite: Consent of the Department. Individual investigations and appropriate exposition of the results. (Unless special permission is granted by the Department Chair, no more than six hours of 3852 may apply toward the English major.) (*Fall, Spring, Summer*)

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. With permission of the English Department, may be repeated for credit as topics vary. (However, only six hours may be used for the requirements for the English major.) (*On demand*)

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, and graphic communication within technical rhetorical contexts. May be repeated once for additional credit with the approval of the English Department. (*On demand*)

ENGL 4050. Topics in English. (3) Special topics not included in other courses. May be repeated for additional credit with approval of the English Department. (*On demand*)

ENGL 4090. Major Authors. (3) The works, ideas, and life of one to three significant authors. With permission of the English Department, may be repeated once for credit as long as different authors are considered. (*On demand*)

ENGL 4102. Classics in British Children's Literature. (3) Prerequisite: ENGL 3102 or 3103 or 3104, or departmental permission. Focuses on pivotal works in the history of British and British Colonial Children's literature. (*Fall*)

ENGL 4103. Classics in American Children's Literature. (3) Prerequisite: ENGL 3102 or 3103 or 3104, or departmental permission. Focuses on pivotal works in the history of American Children's literature. (*Spring*)

ENGL 4104. Multiculturalism and Children's Literature. (3) Prerequisite: ENGL 3102 or 3103 or 3104, or departmental permission. Focuses on works that represent one or more kinds of cultural, ethnic, or social diversity of the United States and other national literatures. (*Fall*)

ENGL 4114. Milton. (3) A study of the major poems and selections from the minor works of Milton. (*On demand*)

ENGL 4116. Shakespeare's Early Plays. (3) A study of 10 representative plays from the comedies, histories, and tragedies written 1590-1600. (*Yearly*)

ENGL 4117. Shakespeare's Late Plays. (3) A study of 10 representative plays from the period 1600-1611, including the late tragedies and tragic-comedies. (*Yearly*)

ENGL 4121. The 18th-Century British Novel: Man, Woman, Manners, and Morals. (3) The novel as narrative form and as mirror of the individual in society. Emphasis on fiction by Defoe, Richardson, Fielding, Sterne, Austen, with further readings in the novel of manners and the Gothic romance. (*On demand*)

ENGL 4122. The Victorian Novel. (3) Readings in British fiction during the triumph of the novel in the 19th century, emphasizing major developments in realism, romance, naturalism. (*On demand*)

ENGL 4123. The Modern British Novel. (3) Representative British novels that embody the cultural and literary developments of the 20th century: the impact of two world wars, the influence of important psychological and economic factors of modern life and their relationships to new techniques in art and literature. (*Alternate years*)

ENGL 4124. Modern Irish Literature. (3) Readings in Irish literature since 1885, with consideration of the mythology, folklore, and social history of Ireland as they are expressed in poetry, drama, and fiction. (*On demand*)

ENGL 4131. British Drama to 1600, Excluding Shakespeare. (3) A survey of the development of British drama to 1600, with representative plays from the Mystery-Miracle Cycles, the Morality Plays, and Tudor drama, including Lyly, Kyd, Marlowe, Peele, Greene, Dekker. (*On demand*)

ENGL 4132. British Drama from 1600-1642, Excluding Shakespeare. (3) A survey of Jacobean and Caroline drama, including plays by Jonson, Beaumont and Fletcher, Webster, Middleton, Shirley, Ford. (*On demand*)

ENGL 4143. The American Novel of the 19th Century. (3) Major novelists and traditions from the beginnings of the American novel through the rise of realism, including such novelists as Hawthorne, Melville, Twain, Howells, James. (*Alternate years*)

ENGL 4144. The American Novel of the 20th Century. (3) Major novelists and traditions from the emergence of naturalism to the present, including such novelists as Crane, Dreiser, Hemingway, Faulkner. (*Yearly*)

ENGL 4145. Literature of the American South. (3) Selected works of Southern writers that reflect literary and

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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. (Yearly)

ENGL 4146. Contemporary Jewish-American Literature. (3) An introduction to the scope and shape of the contemporary Jewish-American literary tradition. Such writers as Bellow, Malamud, Roth, Singer, and Potok will be studied. (*On demand*)

ENGL 4147. Early Black American Literature. (3) Prerequisite: ENGL 2301. A survey of significant writings by Black Americans before the Harlem Renaissance. (*Alternate years*)

ENGL 4148. Twentieth-Century Black American Literature: Prose. (3) Prerequisite: ENGL 2301. Intensive study of selected black American 20th-century writers of fiction and nonfiction, beginning with the Harlem Renaissance. (*Alternate years*)

ENGL 4150. Contemporary Poetry. (3) Poetry in English (including translations) since 1940. (*On demand*)

ENGL 4151. Modern Drama. (3) Representative Continental, British, and American plays, from Shaw to the present. (*Alternate years*)

ENGL 4152. Modern European Literature. (3) Selected modern European authors, translated into English, whose works have been of special interest to readers and writers of British and American literature. (*On demand*)

ENGL 4153. Contemporary Fiction. (3) Selected present-day fiction, with an emphasis upon works from outside the United States and Britain. Works not originally in English will be studied in translation. (*On demand*)

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. (*On demand*)

ENGL 4156. Gender and African-American Literature. (3) Crosslisted as AAAS 4106. Prerequisites: ENGL 2100 and 2301, or permission of instructor. 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. (*Alternate years*)

ENGL 4157. African-American Poetry. (3) Crosslisted as AAAS 4107. Prerequisites: ENGL 2100 and 2301 or permission of instructor. Intensive study of African-American poetry, focusing on one period or traversing several. (*Alternate years*)

ENGL 4158. African-American Literary Theory and Criticism. (3) Crosslisted as AAAS 4108. Prerequisites: ENGL 2100 and 2301, or permission of instructor. History of an African-American approach to literary analysis, including a practicum in modern criticism. (*Alternate years*)

ENGL 4161. Modern English Grammar. (3) A study of the structure of contemporary English, with an emphasis on descriptive approaches. (*On demand*)

ENGL 4165. Language and Culture. (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. (Yearly)

ENGL 4166. Comparative Language Studies for Teachers. (3) Prerequisite: ENGL 3132 or permission of Department. An introductory course designed to aid the teacher of English as a Second Language in comparing the systems of sound and structure of another language with those systems in English. (Yearly)

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. (*Alternate years*)

ENGL 4180. Theories of Technical Communication. (3) Prerequisite: ENGL 2116. Rhetorical, psychological, and anthropological theories that underscore the interrelations of written and graphic communication within technical, rhetorical contexts. (*Fall*)

ENGL 4181. Writing User Documents. (3) Prerequisite: ENGL 2116. Researching and analyzing audiences to write publishable instructions. This includes the production, testing, and revision of tutorials, reference manuals and on-line documents for users of computers and other devices. (*Spring*)

ENGL 4182. Writing and Designing Computer-based Documents. (3) Prerequisite: ENGL 2116. Theoretical and practical exploration of desktop publishing. Students will write and publish camera-ready documents by rhetorically integrating text and graphics using computer aids. (*Fall*)

ENGL 4183. Editing Technical Documents. (3) Prerequisite: ENGL 2116. Document editing, including copy editing, proofreading, substantive editing, and project management. (*Spring*)

ENGL 4202. Writing Poetry. (3) Prerequisite: ENGL 2126 or 2127, or permission of instructor. Further study of and practice in the writing of poetry within a workshop format. May be repeated once for credit with the consent of the English Department. (*Fall, Spring*) (*Evenings*)

ENGL 4203. Writing Fiction. (3) Prerequisite: ENGL 2126 or 2128, or permission of instructor. This course provides further study of and practice in the writing of fiction within a workshop format. May be repeated once for credit with the consent of the English Department. (*Fall, Spring*) (*Evenings*)

ENGL 4204. Expository Writing. (3) (W) Writing of essays, criticism, and various forms of exposition. (*Fall, Spring*) (*Evenings*)

ENGL 4205. Advanced Expository Writing. (3) Prerequisite: ENGL 4204. May be repeated once for credit with permission of the English Department. (*Alternate years*)

ENGL 4208. Poetry Writing Workshop. (3) Prerequisite: ENGL 4202. Designed for advanced writers of poetry. Focuses primarily on student work and peer criticism of it. May be repeated once for credit with permission of Department. (*Yearly*)

ENGL 4209. Fiction Writing Workshop. (3) Prerequisite: ENGL 4203. Designed for advanced writers of fiction. Focuses primarily on student work and peer criticism of it. May be repeated once for credit with permission of Department. (*Yearly*)

ENGL 4211. Chaucer. (3) The poetry of Geoffrey Chaucer, including *The Canterbury Tales* and *Troilus and Criseyde*. (*On demand*)

ENGL 4254. Teaching English/Communication Skills to Middle and Secondary School Learners. (1-3) Approaches to the teaching of English, including recent theories and research related to writing and literary study, designed primarily for teaching in grades 6-12. (*Yearly*)

ENGL 4260. History of the English Language. (3) Origins and development of the English language, both spoken and written, from its earliest forms to contemporary usage. (*Yearly*)

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. (*Alternate years*)

ENGL 4264. Literacy in Family and Community. (3) Exploration of literacy issues and outreach in schools, agencies, and work sites. (*Spring*)

ENGL 4290. Advanced Creative Project. (3) Prerequisite: ENGL 4208 or 4209, or permission of the instructor. The planning, writing, and polishing of a work of at least 20 pages of poetry or at least 40 pages of fiction or creative non-fiction by advanced undergraduate or graduate students with the guidance of a member of the Department's creative writing faculty. The final work may be a single piece or a collection of pieces and will evolve under the supervision of the primary instructor. With permission of the Department, students who took the course as undergraduates may repeat as graduate students. (*On demand*)

ENGL 4400. English Composition Practicum. (1-3) (W) Prerequisite: Consent of the 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. This course is highly recommended for those planning to teach or those currently engaged in teaching. With permission of the English Department may be repeated once for credit. (*Fall*)

ENGL 4410. Professional Internship. (3 or 6) Prerequisites: Permission of English Internship Coordinator. Restricted to juniors and seniors minoring in English or Communications who have at least a 2.5 GPA and 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. Only three credit hours may be applied to the English major; three additional hours may be counted as a University or Communications elective. (*Fall, Spring, Summer*)

ENGL 4852. Independent Study. (1-3) Prerequisite: Consent 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 additional credit with approval of the English Department. (*Fall, Spring, Summer*)

ENGINEERING (ENGR)

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 a grade of C or better. Additional prerequisite for mechanical engineering majors: MATH 1241 with a grade of C or better. Corequisite: ENGR 1201 with consent of Department. Applications in the disciplines of Civil, Electrical, and Mechanical Engineering using tools and techniques specific to the major. Emphasis on analytical and problem solving skills and understanding of the profession/curriculum.

ENGR 3295. Multidisciplinary Professional Development. (1) Prerequisite: Senior standing or Junior 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 entrepreneurship, ethics, and career planning. (*Pass/No Credit*)

ENGR 3590. Engineering Cooperative Education and 49ership Experience. (0) This course is required of Co-op and 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 registration fee for transcript notation (49ership and Co-op) and receive full-time student status (Co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center.

ENGR 3670. Total Quality Systems. (3) Prerequisite: Junior or Senior status and permission of instructor. 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;

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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.

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. *(Fall, Spring) (Evenings)*

ESCI 1101L. Earth Sciences-Geography Laboratory. (1) Prerequisite or co-requisite: 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. *(Fall, Spring) (Evenings)*

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 2101. The Environmental Dilemma. (3) Nature, causes, and responses to major environmental problems. *(Yearly)*

ESCI 2200. Introduction to Earth Sciences Research. (3) Prerequisites or corequisites: ESCI 1101; GEOL 1200 and 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. *(On demand)*

ESCI 2210. Field Methods in the Earth Sciences. (4) Prerequisites: ESCI 1101-1101L; GEOL 1200-1200L; and ENGL 2116 or consent of instructor. Field techniques used in studies of geology, topography, and earth sciences. Skills related to the collection and presentation of scientific data emphasized. Three lecture hours, three hours of lab per week. Earth Sciences majors should take ESCI 2210 as soon as possible after completion of ESCI 1101-1101L and GEOL 1200-1200L. *(Spring, Fall)*

ESCI 3000. Selected Topics in Earth Sciences. (1-4) Prerequisite: ESCI 1101-1101L or GEOL 1200-1200L and consent of instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. May be repeated for credit as topics vary. *(On demand)*

ESCI 3105. Oceanography. (3) Oceanography with an emphasis on physical, chemical, and geological aspects of the

world oceans. Oceanic circulation, seawater composition and chemistry, and marine sedimentation and geology. *(Summer)*

ESCI 3150. Natural Environments of North America. (3) Prerequisites: ESCI 1101 or GEOL 1200-1200L. Regional geomorphology and ecology of North America with emphasis on development, maintenance, and interaction of the geomorphic and ecological provinces. *(On demand)*

ESCI 3170. Environmental Quality Management. (3) Prerequisites: ESCI 1101-1101L. Selected methods of air and water resource analysis with emphasis on conceptual models and statistical techniques of environmental and risk assessment. *(Fall)*

ESCI 3180. Environmental Impact Analysis. (3) Prerequisites: ESCI and GEOL majors 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. *(On demand)*

ESCI 3500. Earth Sciences Cooperative Education or 49ership Experience. (0) Enrollment in this course is required for the Department's earth sciences cooperative education and 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. *(Fall, Spring, Summer)*

ESCI 3501. Earth Sciences Cooperative Education Seminar. (1) This course is required of earth sciences cooperative education students in each semester following a work assignment for presentation of earth sciences reports on the co-op learning experience. *(Fall, Spring, Summer)*

ESCI 4000. Selected Topics in Earth Sciences. (1-4) Prerequisites: ESCI 1101-1101L, GEOL 1200-1200L, or permission of the instructor. In-depth treatment of specific topics selected from one of the fields of the earth sciences. May be repeated for credit as topics vary. *(On demand)*

ESCI 4140. Hydrologic Processes. (4) Prerequisite: ESCI 1101-1101L or GEOL 1200-1200L. Atmospheric, soils, and geologic aspects of surface and ground water processes. Three lecture hours and one three-hour lab per week. *(Fall)*

ESCI 4155. Fluvial Processes. (4) Prerequisites: ESCI 1101-1101L or GEOL 1200-1200L. 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. *(Spring)*

ESCI 4170. Fundamentals of Remote Sensing. (4) Prerequisite: ESCI 1101-1101L or GEOL 1200-1200L, or consent of instructor. Physical fundamentals of remote sensing and overview of airborne and satellite systems operating in the visible, infrared, and radar regions, and a

review of applications for resource exploration, environmental studies, land use and land cover analysis, and natural hazards. Three lecture hours and one three-hour lab per week. *(Fall)*

ESCI 4180. Digital Image Processing in Remote Sensing.

(4) Prerequisite: ESCI 4170 or consent of instructor. Scientific and computational foundations of digital image processing techniques for extracting earth resource information from remotely sensed data. Three lecture hours and three lab hours per week. *(Spring)*

ESCI 4210. Soil Science. (4) Prerequisites: GEOL 1200, 1200L, ESCI 1101, 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. *(Fall)*

ESCI 4222. Watershed Science. (3) Prerequisites: Earth Science Majors and M.A. Geography students: ESCI 4140 or 4155 or GEOL 4145; Biology Majors and M.S. Biology students: BIOL 4149 and consent of the instructor; Civil Engineering Majors and M.S.C.E. students: CEGR 3141 or 5144 and consent of the instructor; all others require the consent of the 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. *(Spring, Alternate years)*

ESCI 4233. Geoenvironmental Site Characterization. (4) Prerequisites: Earth Sciences, Geology, and M.A. Geography majors: ESCI 4140 or 4155. Others require consent of the 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. *(On demand)*

ESCI 4400. Internship in Earth Sciences. (3-6) Prerequisite: Consent of the 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. *(On demand)*

ESCI 4600. Earth Sciences Seminar. (1) (O) Prerequisites: ESCI 1101, 1101L, GEOL 1200, 1200L and senior standing for Earth Sciences and Geology majors or permission of the instructor. Advanced seminar series examining major

historical and modern research themes in the Earth Sciences. Course work consists of a series of independent and group oral presentations. The seminar meets weekly for two hours. Course may be repeated for credit as topic varies. *(Fall, Spring)*

ESCI 4800. Individual Study in Earth Sciences. (1-4)

Prerequisite: Permission of the Department and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit as topics vary. *(On demand)*

CIVIL ENGINEERING TECHNOLOGY (ETCE)

ETCE 1121. Construction Methods. (3) An introduction to the basic construction methods and operations used on civil engineering projects. The course includes basic construction and civil engineering terminology, identification and selection of construction equipment and techniques, and an overview of the components and processes used in the construction of concrete, steel, and wood-framed structures.

ETCE 1211. Surveying I. (4) An introduction course to field surveying and site planning. This course covers standards, units, and calibration of equipment, measurement of distance, elevation, angles, and analysis of systematic and random errors in the measurements, adjustments of measurements, weighting, and principle of least squares. The course includes three hours of lecture and/or up to three hours of laboratory per week.

ETCE 1222. Construction Materials. (3) Prerequisite: ETCE 1121. Study of the behavior and physical properties of basic construction materials. Topics include mineral aggregates, Portland cement concrete, masonry, wood, asphalt concrete, metals, plastics, other materials. Two hours lecture and three hours laboratory.

ETCE 2112. Surveying II. (4) Prerequisite: ETCE 1211 Surveying I. An intermediate surveying and site-planning course. This course covers plane survey, design and layout of horizontal and vertical curves, direction and traversing, design of site plan, control of grading, and global positioning system. The course includes three hours of lecture and three hours of laboratory per week.

ETCE 2410. Introductory Environmental Engineering Technology. (3) 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.

ETCE 3111. Structural Analysis I. (3) Prerequisite: elementary courses in statics and strength of materials. Basic concepts and principles of structural analysis relating to beams, trusses, and frame structures. Analysis of statically determinate structures under fixed and moving loads, influence lines for moving loads. Approximate analysis of indeterminate structures. Emphasis on practical aspects of structural analysis.

ETCE 3112. Structural Analysis II. (3) Prerequisite: ETCE 3111. Deflection of structures. Analysis of statically indeterminate structures using the methods of three-moments,

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consistent distortions, slope deflection, and moment-distribution. An introduction to matrix methods of structural analysis.

ETCE 3121. Foundations and Earthwork. (3) Study of basic design and construction of foundations. Background theories are generally introduced in concise forms as formulas or charts. Emphasis on practical aspects of foundation design and earthwork construction.

ETCE 3132. Hydraulics. (3) A study of the fundamental principles of hydraulics and their applications in engineering practice, including the fundamentals of fluid flow through orifices, tubes and pipes, in open channels, and over weirs.

ETCE 3150. Hydraulics and Materials Laboratory. (1) (W) Laboratory designed to provide the student with: (1) An understanding of apparatus, techniques, and procedures used to measure hydraulic flow, pressure, and head loss in open and closed conduits. Verification of some of the principles of hydraulics relating to fluid flow through Venturi meters, orifices, tubes and closed conduits, in open channels and over weirs; (2) An understanding of the apparatus, techniques, procedures, and test standards used to test construction materials. Three laboratory hours per week.

ETCE 3151. Soil Testing Laboratory. (1) (W) Prerequisite or corequisite: ETCE 3121. A laboratory that is 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 3154. Asphalt and Asphalt Mixtures Laboratory. (1) (W) 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 3211. Reinforced Concrete Design. (3) Prerequisite or corequisite: ETCE 3112. Design of rectangular beams, T-beams, columns, reinforced concrete floor systems, and reinforced concrete footings, according to the ACI code. Quality control of concrete and structural inspection.

ETCE 3212. Structural Steel Design. (3) Prerequisite: ETCE 3112. Design of beams and columns, floor framing, tension and compression members, bolted and welded connections, according to AISC specifications.

ETCE 3241. Highway Design and Construction. (3) Introduction to highway planning, economic considerations, and traffic engineering. Design and construction of modern highways including grade separations and interchanges.

ETCE 3243. Project Management Technology. (3) Use of CPM and other network analysis methods for planning, managing, and controlling projects.

ETCE 3252. Environmental Laboratory. (1) (W) Prerequisite or corequisite: ETCE 3262. Laboratory on the analysis of water and sewage and problems related to environmental control. Three laboratory hours per week.

ETCE 3253. Construction Engineering Technology Field

Laboratory. (1) (W) Prerequisite: senior standing. A synthesis of prior work, using fundamental principles as applied in a directed project. Three laboratory hours per week. (*On demand*)

ETCE 3262. Introduction to Environmental Engineering Technology. (3) Prerequisite: ETCE 3132. Study of water supply, treatment, and distribution, and liquid-waste disposal systems.

ETCE 3281. Cost Estimating. (3) Methods used to estimate costs of construction activities. Develops the methods and procedures for preparing quantity surveys and to estimate labor and equipment requirements.

ETCE 3293. Building Systems. (3) Basic theory and practical application of heating, ventilation, air conditioning, plumbing and electrical systems in construction. Study of National Fire and Plumbing Codes.

ETCE 3642. Senior Design Project. (2) (W) (O) Prerequisite: Senior standing Civil Engineering Technology consent of the Department. Utilization of students' previous course work to creatively investigate and produce solutions for a comprehensive civil engineering technology project.

ELECTRICAL ENGINEERING TECHNOLOGY (ETEE)

ETEE 1101. Electronics Lab I. (1) Prerequisite or corequisite: ETEE 1123. Experiments that support the concepts and practices covered in ETEE 1123. Three laboratory hours per week.

ETEE 1123. DC Circuit Analysis. (3) Prerequisite or corequisite: MATH1100. This course is an introduction to DC electricity with an emphasis on circuit analysis and measurements. Topics include DC principles, circuit analysis laws and theorems, components, and test equipment operation.

ETEE 1201. Electronics Lab II. (1) Prerequisite 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: ETEE 1123. 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 or corequisite: ETEE 1123 and MATH1103. This course introduces AC electricity with an emphasis on circuit analysis, measurements, AC principles, circuit analysis laws and theorems, components, test equipment operation, and circuit simulation software.

ETEE 2101. Electronics Lab III. (1) Prerequisite 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. (3) This course introduces computer-aided drafting (CAD) with an emphasis on applications 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 or corequisite: 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) Prerequisite 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 1233. 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) Prerequisite: ETEE 1233. 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.

ETEE 3124. Analysis of Linear Networks II. (4) Prerequisite: ETEE 3133. Prerequisite or corequisite: ETGR

3171. Circuit analysis utilizing network theorems and techniques in the frequency domain. 2nd order responses. Two port network analysis and transfer functions. Bode plots; transformers and filter applications; introduction to fourier analysis. Application of PSPICE for circuit analysis.

ETEE 3133. Analysis of Linear Networks I. (3) Prerequisite or corequisite: ETGR 3171 or MATH 1121. Resistive circuits; current and voltage sources; Kirchhoff's laws, network theorems, RC and RL circuits; waveform analysis and synthesis; time domain circuit analysis; 1st order natural and forced responses; Laplace Transform fundamentals. Circuit transformations. Intro to frequency domain circuit analysis. Application of PSPICE for circuit analysis.

ETEE 3153. ETEE Laboratory I. (1) (W) Prerequisites or corequisites: ETEE 3133 and 3183. Experiments which support concepts and practice covered in ETEE 3133 and 3183. Three laboratory hours per week.

ETEE 3156. ETEE Laboratory II. (1) (W) Prerequisites or corequisites: ETEE 3124. Experiments which support concepts and practice covered in ETEE 3124. Three laboratory hours per week.

ETEE 3183. Digital Logic Design. (3) Prerequisite: two-quarter course sequence in digital logic circuits. 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) Prerequisites: ETEE 3124. Rectifiers; amplifiers analysis; transistor biasing; small signal models; feedback amplifier analysis; amplifier frequency response.

ETEE 3212. Active Networks II. (3) Prerequisite: ETEE 3211. Amplifier frequency response (continued); feedback amplifier frequency response; operational amplifiers and applications.

ETEE 3213. Industrial Electronics. (3) Prerequisite: ETEE 3124. Prerequisite or corequisite: ETEE 3211. Powerdiodes, 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) Prerequisite 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 co-requisites: Senior status 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. *(On demand)*

ETEE 3240. Fiber Optics Systems. (3) Prerequisites or co-requisites: Senior status in ET or permission of

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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. *(On demand)*

ETEE 3255. ETEE Laboratory III. (1) (W) Prerequisites or corequisites: ETEE 3211 and 3281. Experiments which support concepts and practice covered in ETEE 3211 and 3281. Three laboratory hours per week.

ETEE 3257. Laboratory III. (1) (W) Prerequisites or corequisites: ETEE 3211 and 3213. Experiments which support concepts and practice covered in ETEE 3211 and 3213. Three laboratory hours per week.

ETEE 3260. Opto-Electronic Communications Laboratory. (1) Prerequisites or co-requisites: ETEE 3230, ETEE 3249, senior status in ET or permission of department. Opto-electronic Communications systems measurements, instrumentation, and applications. Experiments support concepts and practice covered in ETEE 3230 and 3240. *(On demand)*

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. *(On demand)*

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: Digital logic fundamentals course. Organization and design approaches for computer network systems. LAN design, hardware and software considerations, network operating systems, TCE/IP fundamentals.

ETEE 3284. Design of Real-Time Systems. (3) Prerequisite: ETEE 3285. Prerequisite 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. *(On demand)*

ETEE 3285. Assembly-Language Programming. (3) Prerequisite: Junior standing or consent of the Department. Programming methodology and assembly language programming for the MC68000 series microprocessors.

ETEE 3286. Microcomputer Applications. (3) Prerequisite: High-level programming language (e.g. BASIC, C, Fortran.) 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) (W) (O) Prerequisite: Senior standing in Electrical Engineering Technology or consent of the Department. A senior design project with a topic agreed to by student and instructor.

Course builds upon technology course work and professional topics seminar. Topics include project planning design, construction, test documentation, and oral presentation of results.

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 class 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.

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 3113. Building Fire Safety. (3) 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 & 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. Applied Fire Engineering Design and Analysis. (3) Prerequisite: ETFS 3103. Application of fire safety engineering technology in fire design and analysis of fires. Topics include computer modeling of compartment fires and emergency evacuation of buildings, structural fire design, sprinkler system design, performance-based design, and fire investigation and reconstruction.

ETFS 3611. Professional Leadership Seminar. (1) (W) (O) This course is to provide 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 4123. Command and Control of Major Disasters. (3) This course focuses on the commanding officer's responsibility while conducting major operations involving multi-alarm units and man-made disasters that may require interagency or jurisdictional coordination. Earthquakes, hurricanes, terrorism, hazardous materials releases, tornadoes, and floods are some of the topics covered. Emphasis is placed on rapid fireground decision making, advanced incident command, command and control, safety, personnel accountability, hazard preparedness, mitigation, response, recovery, evacuation, sheltering and communications.

ETFS 4243. Research Investigation. (3) (W) (O) 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.

ENGINEERING TECHNOLOGY (ETGR)

ETGR 1100. Engineering Technology Computer Applications. (3) This course 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

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engineering applications software.

ETGR 1103. Technical Drawing I. (2) This course deals with 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. One hour of Lecture and three hours of laboratory per week.

ETGR 1104. Technical Drawing II. (3) This course introduces the student to advanced techniques of Computer Aided Drawing (CAD) using modern technical drawing software such as AutoCAD. Topics include dimensioning, isometric views, three-dimensional modeling, wireframe, and surface models. Upon completion of the course, students should be able to understand, interpret, and produce complex technical drawings using modern computer aided drawing tools such as AUTOCAD. Two hours of lecture and three hours of laboratory per week.

ETGR 1201. Introduction to Engineering Technology. (2) 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. This course covers fundamentals and applications of statics. Topics of study include the analysis of coplanar and noncoplanar force systems using analytical and graphical methods. Included are systems of forces and couples, equilibrium of particles and rigid bodies, distributed force systems, centroids and moments of inertia, and introduction to the analysis of structures.

ETGR 2102. Applied Mechanics II. (3) Prerequisite: ETGR 2101 Applied Mechanics I. This course covers the fundamentals of the mechanics of deformable bodies and introduces the student to the field of dynamics. Topics include concepts of stress and strain, axial load, statically indeterminate axially loaded members, the principle of superposition, torsion, bending and shear stresses in beams, deflection of beams, the elastic curve, transformation of stress and strain, Mohr's circle, introduction to stability and buckling of columns, and an introduction to dynamics.

ETGR 2106. Electrical Circuits. (3) Prerequisite: MATH 1103. This course provides an introduction to AC and DC circuits. Simple series and series-parallel circuits will be 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 will be introduced to show their applications to analysis of AC circuits. Capacitors and inductors and their effects will be covered.

ETGR 2122. Technical Programming. (3) This course introduces computer programming using the C programming language as related to engineering technology. Topics include input/output operations, sequence, selection, iteration, arithmetic operations, arrays tables, and pointers.

ETGR 3000. Special Topics in Engineering Technology. (1-4) Prerequisite: senior standing in Engineering Technology or consent of the 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. *(On demand)*

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 I. (3) Prerequisites: differential and integral calculus. Methods of solving engineering problems which involve the differentiation and integration of algebraic, trigonometric and logarithmic functions; use of integral tables.

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. *(On demand)*

ETGR 3233. Computer Graphic Technology. (3) Study of computer graphics as a design drafting tool. Using computer driven plotters and digitizers to prepare engineering drawings and illustrations. *(On demand)*

ETGR 3272. Applied Numerical Methods. (3) Prerequisite: ETGR 3071, ETGR 3171 and a course in programming using a higher level language. Numerical methods for the solution of engineering problems on the digital computer. Emphasis on applications to civil and mechanical engineering technology, using both commercial and student written programs.

ETGR 3643. Senior Design Project. (3) (W) (O) 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: ETMF 3490 or ENGR 3590. Required during the semester immediately following each work assignment for students enrolled in either ETMF 3490

or ENGR 3590; for presentation of engineering reports (verbal and oral) on work done the prior semester. May be repeated for credit.

INDUSTRIAL ENGINEERING TECHNOLOGY (ETIN)

ETIN 3103. Methods Analysis. (3) Analysis of work methods; a study of work measurement systems; regression techniques in formula construction; progress curves. *(On demand)*

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. *(On demand)*

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. *(On demand)*

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. *(On demand)*

ETIN 3233. Occupational Safety. (3) Causes and prevention of industrial accidents. Hazardous processes and material. Design of accident prevention programs. *(On demand)*

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. *(On demand)*

ETIN 3263. Human Factors. (3) Human capabilities and limitations affecting communications and response in man-machine systems. Physiological and psychological fundamentals; anthropometrics. *(On demand)*

MECHANICAL ENGINEERING TECHNOLOGY (ETME)

ETME 1101. Manufacturing Processes. (4) This course surveys and introduces common manufacturing processes and design for manufacture considerations. Student will be introduced to methods and equipment used to transform materials, and to the interdependency between geometry (form), materials properties, and processes and their effects on functionality of the manufactured artifact. Coverage will include processing of polymers, metals, and ceramics. The purpose of this course is to provide the students the conceptual understanding of materials processes.

ETME 2101. Applied Materials. (4) This course introduces the student to materials and to the concept that materials are designed to provide the desired properties in the same way that the parts themselves are designed. The students will

learn to understand that the processes we use to change materials into the geometries we want for also change the properties of the materials. The course intends to approach materials from a design and manufacturing perspective.

ETME 2102. Mechanisms. (3) Prerequisite: ETGR 1104, PHYS 1102. This course covers plane motion and devices used to generate plane motion. Topics include analysis of displacement, velocity, acceleration, gears, cams and other mechanical systems.

ETME 2156 Machine Shop Practices (2) and ETME 2156L Machine Shop Practices Lab. (1) Prerequisites: ETME 1101, ETME 2101, ETME 1102. This course introduces students to machine shop techniques and designing for machining with a combination of lectures and projects. Students will learn design for machining guidelines, about specification of machining operations, and about shop measurement instruments and techniques.

ETME 2202. Mechanical Drawing. (2) This course is a continuation of ETGR 1103 & ETGR 1104. The primary focus is 3D parametric modeling of mechanical components and assemblies using Autodesk Mechanical Desktop software.

ETME 3113. Dynamics. (3) Prerequisites: statics, differential and integral calculus. 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: statics, differential and integral calculus. 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 3133. Fluid Mechanics. (3) 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 3143. Thermodynamics. (3) Prerequisites or corequisites: differential and integral calculus. 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 3151. Fluid Mechanics Laboratory. (1) (W) Prerequisite or corequisite: ETME 3133. Flow through conduits and in open channels, the experimental determination of fluid specific weights, viscosity and flash and fire points. Flow measuring devices such as orifices, venturi tubes, anemometers and pitot tubes. Laminar-turbulent flow and stability.

ETME 3152. Stress Analysis Laboratory. (1) (W) Prerequisite or corequisite: ETME 3123. Experiments illustrating stress-strain relationships in engineering materials and the use of brittle coating, photoelasticity and electrical-resistance strain gages.

ETME 3163. Instrumentation and Controls. (3)

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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) Prerequisite: ETME 3123. Prerequisite or corequisite: ETME 3113. 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 nonuniform 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. *(On demand)*

ETME 3232 and ETME 3242. Senior Design Project I and II. (2) (2) Prerequisites: ETME 3143 and ETME 3213. Corequisite or prerequisite: ETME 3164 or permission. 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 3243. Senior Design Project. (3) Prerequisite: ETME 3113, 3133, 3143, 3213, and 3163. Students develop solutions to design problems requiring application of skills developed in mathematics and technical specialty courses. Design problem solutions are presented in both written form and to the class in oral presentations. May be repeated for credit.

ETME 3244. Applied Heat Transfer. (3) Prerequisites: ETME 3133. Basic principles of heat transfer. Theory and applications of conduction, free and forced convection and radiation heat transfer. Heat exchangers and heat transfer measurement. *(Fall)*

ETME 3251. Instrumentation Laboratory. (1) (W) Prerequisite or corequisite: ETME 3163. Practice in the use of the various instrumentation devices studied in ETME 3163.

ETME 3252. Thermodynamics and Heat Transfer Laboratory. (1) (W) Prerequisite or corequisite: ETME 3143. 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 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 will be considered. *(On demand)*

ETME 3273. 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. *(On demand)*

ETME 3283. Modern Techniques in Energy Conservation and Utilization. (3) Prerequisite: ETME 3143 or consent of the 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. *(On demand)*

MANUFACTURING ENGINEERING TECHNOLOGY (ETMF)

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. *(On demand)*

ETMF 3113. Fundamental of Optics. (3) Prerequisite: 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. *(On demand)*

ETMF 3114. Thin Films and Optical Coatings. (3) Prerequisite: algebra, trigonometry, plane geometry, and physics. Vacuum technology, process controls, and special techniques used in the fabrication of thin films and the surfaces on which they are prepared; ways in which the optical tribological, and electronic industries utilize these structures in their products. *(On demand)*

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. *(On demand)*

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. *(On demand)*

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. *(On demand)*

ETMF 3153. Optics Laboratory. (2) Prerequisite or corequisite: ETMF 3113. Experiments designed to illustrate properties of light and optical systems; reflection and refraction; lenses and lens systems; optical instruments; interference and diffraction; polarized light; laser principles. *(On demand)*

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. *(On demand)*

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. *(On demand)*

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 micro computers to system control and status reporting. One class hour, three lab hours per week. *(On demand)*

ETMF 3490. Manufacturing Engineering Technology Practicum. (0) Directed individual study in a selected area of Manufacturing Engineering Technology exploring the practical applications and practices in industry or research. *(On demand)*

FINANCE (FINN)

FINN 3000. Topics in Finance. (3) Prerequisite: junior standing. Topics from the area of Finance. The course may be repeated for credit. *(On demand)*

FINN 3120. Financial Management. (3) Prerequisites: MATH 1120, STAT 1220; ACCT 2121, 2122, ECON 2101, 2102; INFO 2130; Business major, junior standing. Principles and problems of financial aspects of managing capital structure, least-cost asset management, planning and control. Computer application will be included where appropriate. *(Fall, Spring, Summer) (Evenings)*

FINN 3220. Financial Analysis. (3) Prerequisite: FINN 3120. This course offers an introduction to the theory and practice of corporate valuation. Topics covered include financial statement analysis, discounted cash flow valuation, ratio analysis, constructing pro-forma financial statements, earnings forecasting, and basic statistical methods important in finance. *(Fall, Spring, Summer) (Evenings)*

FINN 3221. Financial Institutions and Markets. (3)

Prerequisites: FINN 3120 and FINN 3220. A study of financial institutions and money and capital markets which considers their roles in the intermediation process. Special emphasis is focused on the comparative financial policies of financial institutions considered in the context of their market environments. *(Fall, Spring, Summer) (Evenings)*

FINN 3222. Investments. (3) Prerequisites: FINN 3120 and FINN 3220. Major topics are security analysis and portfolio management. The viewpoint is that of the investment professional concerned with evaluation of individual securities and management of security portfolios. *(Fall, Spring, Summer) (Evenings)*

FINN 3223. International Financial Management. (3) Prerequisite: FINN 3120. Viewpoints are those of the senior financial officer of a corporation involved in international business and of the international officer of a commercial bank. Topics include the financing of exports and imports, financing of foreign operations, problems of foreign exchange rates and the impact of accounting procedures on financial management. *(Fall, Spring, Summer) (Evenings)*

FINN 3224. Applied Business Finance. (3) Prerequisites: FINN 3120 and FINN 3220. Case studies of the theories and techniques of financial management as they relate to the goal of the financial manager; the maximization of the value of the firm. Topics include financial planning, valuation, financial instruments, financial structure, and capital budgeting. *(On demand)*

FINN 3225. Commercial Bank Management. (3) Prerequisites: FINN 3120 and FINN 3220. 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. *(Fall, Spring, Summer) (Evenings)*

FINN 3226. Financial Theory and Practice. (3) Prerequisites: FINN 3120 and FINN 3220. Modern financial theory and its application, 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. *(Fall, Spring, Summer) (Evenings)*

FINN 3261. Real Estate Finance (3) Prerequisite: FINN 3120. This course covers the fundamentals of real estate finance and investment and includes the topics of: 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. *(Yearly)*

FINN 3271. Principles of Risk Management and Insurance. (3) Prerequisite: INFO 2130, junior standing, business major or permission of the department. A study of the different types of nonspeculative risks faced by individuals and businesses and the possible alternative methods of treating such risks. An examination of the specific application of these methods with regard to life, health, property, casualty, and liability contracts. *(Fall, Spring, Summer) (Evenings)*

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FINN 3272. Life Insurance and Professional Financial Planning (3) Prerequisite: INFO 2130, junior standing, business major or permission of the department. This course explains the uses of life insurance, annuities, health insurance and Social Security in the financial planning context. It 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. *(Fall)*

FINN 3273. Property and Casualty. (3) Prerequisite: INFO 2130, junior standing, business major or permission of the department. Involves an analysis of the needs of business and individuals for property and casualty insurance and the nature of available coverage. An examination of property and casualty insurance products is included, emphasizing 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. *(Fall) (Evenings)*

FINN 3275. Advanced Risk Management. (3) Prerequisites: FINN 3271 (or consent of Department Chair). Provides an in depth analysis of techniques that firms can 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. *(Fall, Spring) (Evenings)*

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. *(Spring)*

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. Will examine the impact the courts have had on claims handling. *(On demand)*

FINN 3500. Cooperative Education or 49ership Experience. (0) Enrollment in this course is for the University cooperative education and 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. *(Fall, Spring, Summer)*

FINN 3800. Directed Study. (1-3) Prerequisites: Consent of the 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. *(On demand)*

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. *(Fall)*

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. *(Spring)*

FOREIGN LANGUAGE (FORL)

Languages in addition to those offered in the regular program may be available on demand. Labs may be required.

FORL 1201. Elementary Foreign Language. (3-4) Prerequisite: permission of the Department. Fundamentals of grammar and phonetics, reading, writing and conversation of a selected language. *(On demand)*

FORL 1202. Elementary Foreign Language. (3-4) Prerequisite: FORL 1201 or permission of the Department. Continuation of 1201. *(On demand)*

FORL 2201. Intermediate Foreign Language. (3-4) Prerequisite: FORL 1202 or permission of the Department. Grammar review, conversation, composition and readings based on the culture and civilization. *(On demand)*

FORL 2202. Intermediate Foreign Language. (3-4) Prerequisite: FORL 2201 or permission of the Department. Grammar, conversation, composition and readings based on students' needs. *(On demand)*

FORL 3050. Topics in Language, Literature and Culture. (3) (W) Studies in a selected field of interest. May be repeated for credit. *(On demand)*

FORL 3160. European Cinema. (3) (W) (O) Prerequisites: Sophomore standing and ENGL 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. *(Spring, Fall)*

FORL 3201. Advanced Foreign Language I. (3) Prerequisite: FORL 2202 or permission of the Department. Review of grammar and guided conversation on prepared topics. Emphasis on spoken language. *(On demand)*

FORL 3202. Advanced Foreign Language II. (3) Prerequisite: FORL 3201 or permission of the Department. Review of grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics. *(On demand)*

FORL 3800. Directed Individual Study. (1-3) Prerequisite:

Permission of the 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. (*On demand*)

FORL 4050. Topics in Foreign Language. (3) Prerequisite: Senior standing or permission of the Department. Studies in a selected field of interest. May be repeated for credit with change of topic. (*On demand*)

FORL 4200. Secondary Methods-Foreign Languages. (3) Prerequisite: Completion of at least two 3000-level courses or equivalent in the target language, or permission of the Department. Current trends and practices in teaching foreign and second languages in the middle school and high school, with emphasis on practical applications. Addresses state-mandated competencies. Required for licensure in the teaching of foreign language and recommended for licensure in teaching English as a Second Language. (*Fall*) (*Evenings*)

FORL 4201. Foreign Languages in the Elementary School Methods. (3) Prerequisite: completion of at least two 3000-level courses or equivalent in the target language, or permission of the Department. Current trends and practices in teaching foreign and second languages in the elementary school, with emphasis on practical applications. Addresses state-mandated competencies. Required for licensure in the teaching of a foreign language and recommended for licensure in teaching English as a Second Language. (*Spring*) (*Evenings*)

FORL 4690. Senior Seminar. (1) Prerequisites: four or more courses at the 3000 or 4000 level in the major or permission of the 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. (*Fall, Spring*) (*Pass/No Credit*)

FORL 4800. Directed Individual Study. (1-3) Prerequisite: permission of the 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. (*On demand*)

FRENCH (FREN)

FREN 1050. Special Approaches to the Study of French. (1-6) Course may be repeated with change of topic. (*On demand*)

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. (*Fall, Spring, Summer*) (*Evenings*)

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. (*Fall, Spring, Summer*) (*Evenings*)

All 2000-level courses except for FREN 2202, FREN 2209, and FREN 2210 fulfill the language requirement of non-majors who are required to take one intermediate-level language class.

FREN 2050. Topics in French I. (1-3) Course may be repeated with a change in topic. (*On demand*)

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. (*Fall and/or Spring*)

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. (*Fall, Spring*)

FREN 2202. Intermediate French II. (3) Prerequisite: FREN 2201 or permission of the Department. Conversation and composition based on readings in French literature and culture. Film and slide presentations. (*Fall, Spring*)

FREN 2207. French Phonetics. (3) Prerequisite: FREN 1202 or permission of the 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. (*Fall*)

FREN 2209. French Civilization. (3) (W) Conducted in English. No knowledge of French required. Open to majors and non-majors for elective credit. A study of the French people, past and present, with emphasis on cross-cultural contrasts in attitudes and values. (*Fall, Spring*)

FREN 2210. Introduction to Business French. (3) Prerequisite: FREN 2201 or permission of the 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. (Alternate to FREN 2202 only for Certificate in Business French) (*Spring*)

FREN 3050. Topics in French. (1-3) Course may be repeated with change of topic. (*On demand*)

FREN 3201. French Grammar and Conversation. (3) (O) Prerequisite: FREN 2202 or permission of the Department. Review of French grammar and guided conversation on prepared topics. Emphasis on spoken French. (*Fall*)

FREN 3202. French Grammar and Composition. (3) Prerequisites: FREN 2202 and 2207 or concurrent enrollment in FREN 2207. FREN 3201 recommended. Review of French grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics. (*Spring*)

FREN 3203. Introduction to French Literature. (3) Prerequisite: FREN 2207; corequisite: FREN 3202 or permission of the Department. Development of techniques for literary study through analysis of selected major works in French literature. Readings, discussions, presentations, and *explications de texte*. (*Spring*)

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FREN 3209. France Today. (3) Prerequisite: FREN 3201 or permission of the Department. Contemporary France: institutions, society, culture. *(Fall)*

FREN 3800. Directed Individual Study. (1-3) Prerequisite: permission of the 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. *(On demand)*

FREN 4003. Studies in French Literature. (3) Prerequisite: FREN 3203 or permission of the Department. Course may be repeated with change of topic. *(On demand)*

FREN 4005. Studies in the French Language. (3) Prerequisites: FREN 3201 and 3202, or permission of the Department. Course may be repeated with change of topic. *(On demand)*

FREN 4007. Studies in French Culture and Civilization. (3) Prerequisites: FREN 3201, 3202, and 3209, or permission of the Department. Course may be repeated with change of topic. *(On demand)*

FREN 4050. Topics in French. (1-3) Prerequisites: Junior standing; English 1102 or equivalent if taught in English. May be taught in French or English. Will not count toward the major. Course may be repeated with change of topic. *(On demand)*

FREN 4120. Advanced Business French I. (3) Prerequisites: FREN 2210, 3201 and an additional 3000- or 4000-level course (3202 recommended), or permission of the 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. *(Fall)*

FREN 4121. Advanced Business French II. (3) Prerequisites: FREN 2210, 3201, and an additional 3000- or 4000-level course (3202 recommended), or permission of the 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. *(Spring)*

FREN 4201. Survey of French Literature I. (3) Prerequisite: FREN 3203. The major literary movements from the Middle Ages to the Enlightenment, with sample texts. Emphasis on continuity and change. *(Fall)*

FREN 4202. Survey of French Literature II. (3) Prerequisite: FREN 3203. The major literary movements from the Enlightenment to the contemporary period, with sample texts. Emphasis on continuity and change. *(Spring)*

FREN 4410. Professional Internship in French. (1-6) Prerequisites: FREN 3201 and 3202, or equivalent and consent of the 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. Offered on a *Pass/No Credit* basis. *(Fall, Spring, Summer)*

FREN 4800. Directed Individual Study. (1-3) Prerequisite:

permission of the 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. *(On demand)*

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 will be studied. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring, Summer)*

GEOG 2000. Topics in Geography. (1-4) Treatment of major topical or regional issues in Geography. May be repeated for credit as topics vary. *(On demand)*

GEOG 2100. Maps and Graphs. (3) 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 discussion of map production techniques. *(Fall, Spring) (Evenings)*

GEOG 2101. Cartographic Laboratory. (1) Prerequisite or corequisite: GEOG 2100. The laboratory emphasizes thematic mapping and design. This includes basic map construction techniques, including desktop mapping with computers. Two hours of laboratory per week. *(Fall, Spring) (Evenings)*

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. *(Fall, Spring) (Evenings)*

GEOG 2120. Geographic Information Systems: Survey of Applications and Techniques. (4) Covers the 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. *(Fall, Spring)*

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 pre-requisite for GEOG 4120. (Spring)

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. (Spring) (On demand)

GEOG 2150. Geography of Polar Regions. (3) Arctic and Antarctic regions, history of exploration, the physical environment and political significance. (Yearly)

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. (Fall)

GEOG 2160. The South. (3) The culture, environment, population and economy of the southeastern U.S.; emphasis on current trends and future implications. (Yearly)

GEOG 2165. Patterns of World Urbanization. (3) (O) Introduction to cities of the world including examination of cities within different culture areas as well as the internal structure of different cities within the context of traditional and innovative theories of development geography. (Fall, Spring, Summer)

GEOG 2200. Introduction to Urban Studies. (3) A survey course exploring the diverse perspectives and experience of North American Cities. Lectures and discussions will 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.

GEOG 3000. Topics in Regional Geography. (3) Examination of major geographical regions of the world. May be repeated for credit as topics vary. (Yearly)

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. (Fall, Spring)

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 changes in these patterns resulting from actions by transnational corporations and nation states within a volatile technological environment. (Spring)

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. (Alternate years)

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. (Alternate years)

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. (Spring) (Evenings)

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. (Spring)

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. (Fall, Spring, Summer)

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. (Spring)

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. (Fall)

GEOG 3250. World Food Problems. (3) Magnitude, consequences, major causes and potential solutions to the world's food problems. (On demand)

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, health care facilities planning and spatial behavior. (On demand)

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. (Fall)

GEOG 3500. Geography Cooperative Education or 49ership Experience. (0) Enrollment in this course is required for the Department's geography cooperative education and 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. (Fall, Spring, Summer)

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. (Fall, Spring, Summer)

GEOG 3605. Geography of Europe. (W) (3) This course explores relevant issues in contemporary Europe. Through

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lecture and written work, the course examines current trends in European political unity, economic integration, national/ethnic conflict and environmental policy from a geographical perspective.

GEOG 4000. Selected Topics in Geography. (3) Prerequisite: Consent of instructor. An intensive study of topics in geography from such areas as urban, manufacturing, planning, retailing activity, transportation, and political geography. Topics vary from semester to semester. May be repeated for credit as topics vary. (*Yearly*)

GEOG 4040. Transportation Topics. (3) Prerequisite: Consent of Department. Investigation of special topics in transportation including: transit systems, mobility and travel patterns, land use/transportation interface, air pollution, and information systems. (*Spring*) (*Alternate years*).

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 with computers, high resolution imagesetting output, color separation techniques which include computer separations as well as scribing and various related photographic processes. Two laboratories of three hours each per week. (*Spring*)

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. (*Fall*)

GEOG 4103. Computer Mapping. (3) Prerequisites: GEOG 2100 and ITCS 1101 or 1214 and its lab, or consent of instructor. Automated methods of gathering, storing, manipulating and displaying spatial data. Emphasis on the use of existing software and the design and implementation of geographic data structures and algorithms. (*Fall*)

GEOG 4108. Sport, Place, and Development. (3) (W) Prerequisite: GEOG 1105. Examines 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. (*Fall, Alternate Years*)

GEOG 4120. Introduction to Geographic Information Systems. (4) Prerequisite: Consent 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 will include development and completion of an applied GIS research project. Additional requirements for graduate credit. Three lecture hours, one two-hour lab per week. (*Yearly*)

GEOG 4130. Advanced Geographic Information Systems. (4) Prerequisite: GEOG 4120 or consent 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. (*Spring*)

GEOG 4140. Geographic Information Techniques for Community Planning. (4) Prerequisite: GEOG 4120 Introduction to Geographic Information Systems, one community planning class and/or consent of the instructor. This class is focused 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 the following areas. (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 will be conducted. A two-hour lab is required.

GEOG 4155. Retail Location. (3) Spatial attributes of retailing and related activities. Location patterns, store location research, trade area delineation and consumer spatial behavior. (*Spring*)

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. (*Spring*)

GEOG 4209. Small Town Planning. (3) This course will explore small town population dynamics, rural-urban fringe land use dynamics, and changes in small towns' community identity and sense of place. Emphasis will be placed on the issues and techniques that typify small town planning environments. Students will investigate these issues via field work and data collection at municipal scales within the Charlotte region. (*Spring, alternate summers*)

GEOG 4210. Urban Planning Methods. (3) Prerequisite: GEOG 3205 or consent of instructor. Scope and methods of urban planning. Emphasis on analytical techniques, projections, and data sources used in developing comprehensive planning tasks and strategies. (*Fall*)

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. (*Fall, On demand*)

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. (*Fall*)

GEOG 4260. Transportation Policy Formulation. (3) Prerequisite: Consent 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. (*Fall*) (*Alternate years*)

GEOG 4265. Transportation Analysis Methods. (3)
Prerequisite: Consent 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. *(Spring) (Alternate years)*

GEOG 4270. Evaluation of Transportation Impacts. (3)
Prerequisite: Consent 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. *(Fall) (Alternate years)*

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 the 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. *(Spring)*

GEOG 4400. Internship in Geography. (3-6) Prerequisite: Consent of the 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. *(On demand)*

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, including one-day and overnight trips to cities of the mountains and coastal areas. Emphasis on day study trips within the Piedmont. Exercises include land-use mapping, trip journals, interviews and comparisons of the results of zoning and urban development practices within satellite cities of the Charlotte Metropolitan Statistical Area. *(Summer)*

GEOG 4800. Individual Study in Geography. (1-4) Permission of Department must be obtained and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit. *(On demand)*

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. *(Fall, Spring, Summer)*

GEOL 1200L. Physical Geology Laboratory. (1) Prerequisite 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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring)*

GEOL 1210L. Earth History Lab. (1) Prerequisites: GEOL 1200, 1200L. Additional prerequisite or corequisite: GEOL 1210. Learn the 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. *(Fall, Spring)*

GEOL 2100. The Violent Earth. (3) Volcanoes, earthquakes, hurricanes, tornadoes, floods and other catastrophic natural phenomena with emphasis on causes, effects and human adjustments. *(On demand)*

GEOL 3000. Selected Topics in Geology. (1-4) Prerequisite: GEOL 1200-1200L, or permission of the instructor. Treatment of specific topics selected from one of the fields of geology. May be repeated for credit as topics vary. *(On demand)*

GEOL 3110. Minerals and Rocks. (3) Prerequisites or corequisites: GEOL 1200 and 1200L. Formation processes, composition and identification of rocks and minerals in the earth's crust with important abundance or special use. *(On demand)*

GEOL 3115. Mineralogy. (4) Prerequisite: GEOL 1200-1200L. Prerequisite or corequisite: CHEM 1251-1251L or consent of the 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. *(Spring)*

GEOL 3120. Geochemistry. (3) Prerequisites: GEOL 1200-1200L and Chemistry 1251-1251L, or consent of instructor. Geochemical survey of origin, evolution and present composition of the earth. *(Alternate years)*

GEOL 3120L. Geochemistry Laboratory. (1) Prerequisite or corequisite: GEOL 3120 or consent of instructor. Analytical methods and sample preparation techniques used by geochemists. One three hour meeting per week. *(On demand)*

GEOL 3124. Sedimentology. (4) (W) Prerequisites: GEOL 1210-1210L, GEOL 3115 or consent of instructor.

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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. (*Fall*)

GEOL 3130. Structural Geology. (4) Prerequisite: GEOL 3115 or consent of the instructor. A systematic examination of the structures and processes of rock deformation. Three lecture hours, one three-hour lab per week. (*Fall*)

GEOL 3140. Paleontology. (3) Prerequisite: GEOL 1200, 1200L and GEOL 1210, 1210L or permission of the 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. (*On demand*)

GEOL 3190. Environmental Geology. (3) Prerequisites: GEOL 1200, 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. (*Spring*)

GEOL 3190L. Environmental Geology Laboratory. (1) Prerequisite or corequisite: GEOL 3190. Investigation of the causes, consequences, and mitigation of natural hazards and disasters. One three-hour lab per week. (*On demand*)

GEOL 4000. Selected Topics in Geology. (1-4) Prerequisites: ESCI 1101-1101L, GEOL 1200-1200L, or permission of the instructor. In-depth treatment of specific topics selected from one of the fields of geology. May be repeated for credit as topics vary. (*On demand*)

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. (*Alternate years*)

GEOL 4105. Geomorphology. (3) Prerequisites: ESCI 1101-1101L or GEOL 1200-1200L. 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. (*Fall*)

GEOL 4105L. Geomorphology Laboratory. (1) Prerequisite or corequisite: GEOL 4105. Analysis of landforms and the surficial processes responsible for landform development. One lab period of 3 hours per week. (*Fall*)(*On demand*)

GEOL 4110. Stratigraphy. (4) Prerequisites: GEOL 1210-1210L 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. (*Spring*)

GEOL 4115. Applied Geophysics. (4) Prerequisites: GEOL 3115, GEOL 3130, and introductory physics or consent 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. (*On demand*)

GEOL 4120. Geologic Mapping and Interpretation. (4) Prerequisites: GEOL 3130 and GEOL 4100 or consent 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. (*Alternate years*)

GEOL 4125. Geologic Summer Field Camp. (6) Prerequisite: junior standing and consent 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. (*Summer*)

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. (*On demand*)

GEOL 4135. Tectonics. (4) Prerequisite: GEOL 3130 or consent of the 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. (*Alternate years*)

GEOL 4145. Fundamentals of Hydrogeology. (4) Prerequisites: GEOL 1200-1200L, MATH 1241, CHEM 1251-1251L, or consent of instructor. Fundamentals of groundwater hydrology. Principles of flow and transport in groundwater aquifers and the vadose zone. Topics include: storage compressibility, capillarity, Darcy's Law, aquifer parameters, steady and transient flow equations, well hydraulics, geological controls on groundwater flow, and transport of non-reactive chemical species by advection, diffusion and dispersion in porous media, together with applied problems. Three hours of lecture, and three hours of lab per week with occasional field trips. (*Fall*)

GEOL 4165. Aqueous Geochemistry. (4) Prerequisite: Prerequisites: CHEM 1251-1251L, CHEM 1252-1252L and GEOL 3115, or consent 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. (*On demand*)

GEOL 4185. Mineralogy, Economics, and the Environment. (3) Prerequisites: GEOL 3115 Mineralogy or consent of instructor. This course will focus on the origin, distribution, and consumption rate of the Earth's mineral resources. Lectures and assignments are intended to promote understanding of the geologic, engineering, and economic factors that govern mineral exploration and production.

Environmental impacts of the mining industry are also discussed. (*On demand*)

GEOL 4400. Internship in Geology. (3-6) Prerequisite: Consent of the 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 student can receive three to six hours credit depending on the nature and extent of the internship assignment. (*On demand*)

GEOL 4410. Applied Soil Science. (4) Prerequisites: GEOL 3115, GEOL 3124, ESCI 4210 or permission of the instructor. Students will read and discuss current literature pertaining to the application of soils to various fields of research such as surficial processes, active tectonics, ecology, stratigraphy, archeology, 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. (*Spring*)

GEOL 4800. Individual Study in Geology. (1-4) Prerequisites: Permission of the Department and credit hours established in advance. Tutorial study or special research problems. May be repeated for credit as topics vary. (*On demand*)

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. (*Fall, Spring, Summer Evenings*)

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. (*Fall, Spring, Summer Evenings*)

All 2000-level courses fulfill the language requirement of non-majors who are required to take one intermediate-level language class.

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. (*Fall, Spring*)

GERM 2202. Intermediate German II. (3) Prerequisite: GERM 2201 or permission of the Department. Review of grammar, composition, and conversation, based upon 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. (*Fall, Spring*)

GERM 2210. Introduction to Business German. (3)

Prerequisite: GERM 2201 or permission of the 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.) (*Fall*)

GERM 3030. Studies in German Culture. (3) Prerequisite for German major: GERM 2202 or equivalent. 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 as topic changes. (*Alternate years*)

GERM 3050. Studies in German Literature. (3) Prerequisite for German major: satisfactory completion of GERM 2202 or equivalent. Conducted in English. No knowledge of German required. May be repeated as topic changes. (*Yearly*)

GERM 3160. Survey of German Film. (3) (W) (O) Prerequisite: sophomore status and ENGL 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 co-requisite of GERM 4050. (*On demand*)

GERM 3201. Advanced German Grammar, Composition and Conversation I. (3) (O) Prerequisite: GERM 2202 or permission of the Department. For prospective teachers of German and students who want intensive oral and written work in the language. Three class hours per week and lab work as assigned by instructor. (*Yearly*)

GERM 3202. Advanced German Grammar and Composition II. (3) Prerequisite: GERM 2202 or permission of the Department. Intensive review of German grammar. Discussion of prepared topics drawn from newspapers and periodicals. Three class hours per week and laboratory work as assigned by instructor. (*Yearly*)

GERM 3800. Directed Individual Study. (1-3) Prerequisite: permission of the 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. (*On demand*)

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 the Department. Study of the major writers and works in a given period. Readings, lectures, and reports. May be repeated for major credit with change of topic. (*Alternate years*)

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 the Department. An analysis of a major genre and its development within German literary history. Readings,

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lectures and reports. May be repeated for major credit with change of topic. (*Alternate years*)

GERM 4050. Special Topics in German. (1-3) Prerequisite: one 3000-level course or permission of the 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. (*Fall, Spring, Summer*)

GERM 4120. Advanced Business German I. (3) Prerequisites: GERM 2210, 3201 and an additional 3000- or 4000-level course (3202 recommended), or permission of the 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. (*Fall*)

GERM 4121. Advanced Business German II. (3) Prerequisites: GERM 2210, 3201, and an additional 3000- or 4000-level course (3202 recommended), or permission of the 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. (*Spring*)

GERM 4203. Survey of German Literature I. (3) Prerequisites: two 3000-level courses or permission of the Department. General introduction to German literature from the Middle Ages to the Classical Period. Book reports and class discussion on collateral readings. (*On demand*)

GERM 4204. Survey of German Literature II. (3) Prerequisites: two 3000-level courses or permission of the Department. German literature since Classicism. Book reports and discussions on collateral readings. (*On demand*)

GERM 4410. Professional Internship in German. (1-6) Prerequisites: GERM 3201 and 3202, or equivalent and consent of the 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. (*Fall, Spring, Summer*)

GERM 4800. Directed Individual Study. (1-3) Prerequisite: permission of the 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. (*On demand*)

GREEK (GREK)

GREK 1201. Elementary Ancient Greek I. (4) Beginning survey of elementary Ancient Greek grammar through selected readings. (*Alternate years*)

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. (*Alternate years*)

GREK 3800. Directed Individual Reading. (1-3)

Prerequisite: permission of instructor. Individual work on an author or genre to be arranged with the instructor. (*On demand*)

GERONTOLOGY (GRNT)

GRNT 2100. Aging and the Lifecourse. (3) Crosslisted 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. (*Annually*)

GRNT 2124. Psychology of Adult Development and Aging. (3) Crosslisted as PSYC 2124. 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. (*Spring*)

GRNT 3115. Health and the Aging Process. (3) Crosslisted as NURS 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. (*Fall*)

GRNT 3132. Aging and Culture. (3) (W) Crosslisted 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. (*On demand*)

GRNT 3600. Senior Seminar and Field Experience in Aging. (3) (W) prerequisites: completion of at least 9 hours in gerontology curriculum including GRNT 2100, and two primary electives (selected from GRNT 3115, 2124, 4110, and 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. (*Spring*)

GRNT 3800. Independent Study in Gerontology. (1-8) Prerequisite: Permission of the 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. (*On demand*)

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 as topics vary. A total of 3 credits can be counted toward minor. (*On demand*)

GRNT 4110. Sociology of Aging. (3) Crosslisted as SOCY 4110. Prerequisite: SOCY 1101 or consent of the instructor. Changing characteristics, aspirations and needs of older adults and their impact upon such institutions as the family, work, the economy, politics, education and health care; emphasis on sociological theories of aging, contemporary

research, and the analysis of specific aging policies and programs. (*Annually*)

GRNT 4134. Families and Aging. (3) Crosslisted as SOCY 4134. Prerequisite: SOCY 1101 or consent 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. (*On demand*)

GRNT 4150. Older Individual and Society. (3) Crosslisted as SOCY 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. (*Yearly*)

GRNT 4250. Aging Programs and Services. (3) Examination of federal, state and local framework of services and programs for the aging. (*On demand*)

GRNT 4260. Women: Middle Age and Beyond. (3) Crosslisted as WMST 4260. Position of older women in society and the particular problems of and issues for women as they age. (*On demand*)

GRNT 4270. Intergenerational Relationships & 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. (*On demand*)

HISTORY (HIST)

HIST 1000. Topics in History. (3) Treatment of a historical topic at an introductory level. May be repeated for credit as topics vary. (*On demand*)

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. (*Fall, Spring, Summer*)

HIST 1121. European History Since 1660. (3) European history from the Age of Absolutism to the present. (*Fall, Spring, Summer*) (*Evenings*)

HIST 1160. U.S. History I. (3) American history from the earliest times to 1865. (*Fall, Spring, Summer*) (*Evenings*)

HIST 1161. U.S. History II. (3) American history from 1865 to the present. (*Fall, Spring, Summer*) (*Evenings*)

HIST 2000. Topics in U.S. History. (3) Treatment of a topic in U.S. History. May be repeated for credit as topics vary. (*Yearly*)

HIST 2001. Topics in European History. (3) Treatment of a topic in European History. May be repeated for credit as topics vary. (*Yearly*)

HIST 2002. Topics in Non-Western History. (3) Treatment of a topic in Non-Western History. May be repeated for credit as topics vary. (*Yearly*)

HIST 2003. Topics in Comparative or Applied History. (3) Treatment of a topic in comparative or applied history. May be repeated for credit as topics vary. (*Yearly*)

HIST 2100. Introduction to Historical Methods. (3) (W) (O) An introduction to the skills needed for historical research and communication. Includes experience with primary and secondary sources, library research, historical evidence, and citation. Special emphasis is placed on the delivery of a coherent, analytical argument in both written and oral formats. Majors only. (*Fall, Spring, Summer*) (*Evenings*)

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. (*On demand*)

HIST 2105. American Slavery and Emancipation. (3) This course surveys the transformation of life and labor for African Americans from the era of North American colonization through the Civil War and Reconstruction. The class will emphasize 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. (*Alternate years*)

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 16th and 17th 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. (*Alternate years*)

HIST 2111. Technology and Science in Society II: Since the Industrial Revolution. (3) The history of science and technology in society from the 18th 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. (*Alternate years*)

HIST 2120. American Military History. (3) A survey of the development and organization of military practice from the colonial period to the present. (*Spring*)

HIST 2125. Democracy in America: A Historical Perspective. (3) This course 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

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ideals with existing social and economic hierarchies. *(Alternate years)*

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. *(Alternate years)*

HIST 2135. Introduction to Museums & Historic Sites. (3) This course introduces students to the history and functions of museums and historic sites. Through lecture, discussion, and field trips, students will learn about the role of museums and historic sites in American society. *(Alternate years)*

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. *(On demand)*

HIST 2150. U. S. Women's History to 1877. (3) Crosslisted as WMST 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. *(Alternate Years)*

HIST 2151. U.S. Women's History since 1877. (3) Crosslisted as WMST 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. *(Alternate years)*

HIST 2152. European Women's/Gender History. (3) Crosslisted as WMST 2252. An exploration of women's changing roles in European Society and politics, covering topics of religion, work, family, and activism. *(Alternate years)*

HIST 2155. Southern Women's History. (3) This course 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. *(Alternate years)*

HIST 2160. African-American History, 1400-1860. (3) Crosslisted as AAAS 1111. The course 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. *(Fall)*

HIST 2161. African-American History Since 1860. (3) Crosslisted as AAAS 1112. This course 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. *(Spring)*

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. *(Fall)*

HIST 2201. History of Modern Asia. (3) Crosslisted 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. *(Spring)*

HIST 2206. Colonial Latin America. (3) A survey of major political, economic, and cultural developments from earliest times to 1826. Meets non-Western requirement. *(Yearly)*

HIST 2207. Modern Latin America. (3) Crosslisted 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. *(Fall)*

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. *(Fall)*

HIST 2211. Modern Africa. (3) Crosslisted 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. *(Spring)*

HIST 2215. A History of Muslim Societies. (3) This course covers the history of Muslim societies from the 6th century until the present times. It 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. *(Alternate years)*

HIST 2216. The Modern Middle East. (3) Crosslisted as RELS 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. Meets non-Western requirement. *(Fall)*

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. *(Alternate years)*

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. *(Alternate years)*

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. (*Alternate years*)

HIST 2260. Britain to 1688. (3) British history with emphasis on institutional, cultural, and economic developments. (*Alternate years*)

HIST 2261. Britain since 1688. (3) Continuation of HIST 2260 with some treatment of the British Empire. (*Alternate years*)

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 19th and 20th centuries, to the present. (*Alternate years*)

HIST 2280. The Emergence of Modern Germany. (3) A political survey to the mid-19th century, emphasizing the dual role of Prussia and Austria in the German world. (*Alternate years*)

HIST 2281. Twentieth Century Germany. (3) The Wilhelmine Empire, the Weimar Republic, the Third Reich and the two Germanies. (*Alternate years*)

HIST 2284. World War II: The European Theater. (3) Major campaigns of World War II with emphasis upon the European theater of operations. (*Alternate years*)

HIST 2285. World War II: The Pacific Theater. (3) A description and analytical survey of the military campaigns in the Pacific theater of operations. (*Alternate years*)

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 (*Fall, Spring*)

HIST 2400. History Internship. (1-3) Applied historical techniques utilizing modern methodology and experiences in off-campus institutions or on historical sites. (Pass/No Credit) (*On demand*)

HIST 3000. Topics in U.S. History. (3) Treatment of a topic in U.S. History. May be repeated for credit as topics vary. (*Yearly*)

HIST 3001. Topics in European History. (3) Treatment of a topic in European History. May be repeated for credit as topics vary. (*Yearly*)

HIST 3002. Topics in Non-Western History. (3) Treatment of a topic in Non-Western History. May be repeated for credit as topics vary. (*Yearly*)

HIST 3003. Topics in Comparative or Applied History. (3) Treatment of a topic in comparative or applied history. May be repeated for credit as topics vary. (*Yearly*)

HIST 3010. History and Culture through Film. (3) An examination of twentieth-century historical themes in cultural context through films and scholarly monographs. May be repeated as topics vary. (*Fall*)

HIST 3101. History of Greece. (3) From the beginning of civilization in Greece to the 1st Century B.C. (*Alternate years*)

HIST 3102. History of Rome. (3) From the beginning of civilization in Italy to the 5th Century A.D. (*Alternate years*)

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. (*Alternate years*)

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. (*Alternate Years*)

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. (*Alternate years*)

HIST 3115. Nineteenth Century Europe, 1814-1914. (3) Political developments in European history from the Congress of Vienna: liberalism, socialism, nationalism, imperialism and the diplomacy leading to World War I. (*Alternate years*)

HIST 3116. Twentieth Century Europe, 1914 to the Present. (3) Crosslisted as INTL 2301. Causes and results of World War I, rise of new governments, collapse of collective security, World War II and the postwar period. (*Fall*)

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 economies. (*Alternate years*)

HIST 3131. History of Sexuality. (3) Crosslisted as WMST 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. (*Alternate years*)

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. (*Alternate years*)

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. (*Yearly*)

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. (*Alternate years*)

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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. *(Yearly)*

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. *(Alternate Years)*

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. *(Alternate years)*

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. *(Alternate years)*

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. *(Alternate years)*

HIST 3169. Central Asia from 1800 to the Present. (3) This course surveys the history of Central Asia from the Russian conquest up through the collapse of the Soviet Union and the era of independence. Specific consideration will be given to the former-Soviet Republics of Kazakhstan, 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. *(Alternate years)*

HIST 3174. Resistance and Adaptation: Indian Peoples Under Spanish Rule. (3) 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. Meets non-Western requirement. *(Alternate years)*

HIST 3175. Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825. (3) 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. Meets non-Western requirement. *(Alternate years)*

HIST 3176. History of Mexico. (3) 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. *(Alternate years)*

HIST 3177. The Cuban Revolution. (3) 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. Meets non-Western requirement. *(Alternate years)*

HIST 3178. History of Brazil. (3) 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. *(Alternate years)*

HIST 3179. Authoritarianism in Latin America. (3) Crosslisted 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 as topics vary. Meets non-Western requirement. *(Alternate Years)*

HIST 3201. Colonial America. (3) This course examines 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. *(Fall)*

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. This course examines the Revolution as a political, social, and military phenomenon, focusing on the transformation of political culture and the experiences of ordinary Americans. *(Spring)*

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. *(Alternate years)*

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. *(Alternate years)*

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. *(Yearly)*

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 to the Civil Rights Movement, industrialization and urbanization. *(Yearly)*

HIST 3215. Southerners. (3) (W) Prerequisites: ENGL 1101 and 1102. A writing-intensive course that explores the distinctive characteristics of Southerners through study of biographies and autobiographies. The varied backgrounds of

Southerners and selected Americans from other regions will be studied. (*Alternate years*)

HIST 3218. Racial Violence, Colonial Times to Present. (3). Crosslisted as AAAS 3218. This course 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. The focus will be on broader processes of social, political, and cultural change and at efforts to build cooperation. (*On demand*)

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. (*Alternate years*)

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. (*Alternate years*)

HIST 3252. United States in the 20th Century, 1932-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. (*Spring*)

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. (*Alternate years*)

HIST 3260. The United States and Latin America. (3) 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. (*Alternate years*)

HIST 3280. Blacks in Urban America. (3). Crosslisted as AAAS 3280. African-Americans have been part of the urban scene since the colonizing of the Americas. The course will examine 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. (*On demand*)

HIST 3281. American Cities. (3) U.S. urban history. The city as a physical place, as a socio-political environment and as a cultural center. Emphasis on the social developments caused by urbanization. (*Alternate years*)

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. (*Alternate years*)

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 will conduct in-depth topics studies, develop

concrete implementation models, and assessment methods for middle and high school classroom use. (*Fall*)

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. This seminar is geared toward advanced education students and history students seeking teaching licensure. (*Yearly*)

HIST 3797. Honors Methods and Practice. (3) Prerequisite: Consent of instructor. Prepares students for the research and writing of an honors thesis. Includes meetings with a range of faculty in the department, preparation of an honors thesis prospectus, and training in research methods and practices. The first course in a required three-course sequence for Honors in History. (*Spring*)

HIST 3798. Honors Seminar. (3) (W) (O) Prerequisite: Consent of instructor. Honors level examination of a particular topic. The second course in a required three-course sequence for Honors in History. May be repeated for credit as topics vary. Required of Davenport Scholars. Completion of this course with a grade of C or better meets the requirement for a 2100 course in the major. (*Fall*)

HIST 3799. Honors Thesis. (3) (W) Prerequisites: HIST 3797, and consent of instructor. The preparation and presentation of an acceptable Honors thesis or its equivalent. The final course in a required three-course sequence for Honors in History. Completion of a thesis earning a grade C or better meets the requirement for a 4000 level course in the major; a grade of "A" is required to earn honors. (*On demand*)

HIST 3800. Independent Projects in History. (3) Prerequisite: Consent of instructor. Individual research or readings on an historical topic. May be repeated for credit with consent of the coordinator or instructor. (*On demand*)

HIST 4000. Problems in American History. (3) (W) Prerequisite: HIST 2100 or permission of the Department. A colloquium designed around a problem in American history, requiring reading, discussion, reports, and a major paper. May be repeated for credit as topics vary. (*Fall, Spring*) (*Evenings*)

HIST 4001. Problems in European History. (3) (W) Prerequisites: HIST 2100 or permission of the Department. A colloquium designed around a problem in European history, requiring reading, discussion, reports, and a major paper. May be repeated for credit as topics vary. (*Yearly, Summer*) (*Evenings*)

HIST 4002. Problems in Non-Western History. (3) (W) Prerequisite: HIST 2100 or permission of the Department. A colloquium designed around a problem in non-Western history, requiring reading, discussion, reports, and a major paper. May be repeated for credit as topics vary. (*Yearly*)

HIST 4300. Introduction to Public History. (3) (W) This course will provide an overview of the main subfields in the field of Public History. Students will learn the fundamentals

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of Museum Studies, Historic Preservation, and other fields at the discretion of the instructor. (*Yearly*)

HEALTH BEHAVIOR AND ADMINISTRATION (HLTH)

HLTH 2101. Healthy Lifestyles. (3) A health survey course with emphasis on health behavior, decision making and knowledge. (*Fall, Spring, Summer*)

HLTH 3000. Topics in Health Behavior and Administration. (1-3) Prerequisite: Consent of the instructor. Prerequisites and credit hours vary with topics. Special topics for intermediate level undergraduates. May be repeated for credit as topics vary. (*On demand*)

HLTH 3110. Health Risk Reduction for Practitioners. (3) The art and science of planning, implementing and evaluating health risk reduction strategies, methods and programs. (*On demand*)

HLTH 3140. Behavior Change Theories and Practice. (3) Prerequisites: PSYC 1101. Principles of behavior change programming and health consulting through an understanding of program planning and evaluation, the origins of various human behavior, contributing factors, issues in adherence and compliance and modern behavior change theories. (*Spring*)

HLTH 4000. Special Topics in Health Behavior and Administration. (1-3) Prerequisites and credit hours vary with topics. Special topics for advanced undergraduates. May be repeated for credit as topics vary. (*On demand*)

HLTH 4120. Mental and Emotional Well-being. (3) Examines mental and emotional health from the perspective of the health educator's role as a facilitator of mental and emotional wellness. (*On demand*)

HLTH 4122. Drugs and Society. (3) Teaching methodology, knowledge and skills for affecting appropriate behaviors through the study of use, misuse and abuse of natural and synthetic chemicals in today's society. (*On demand*)

HLTH 4124. Safety Through the Life Span. (3) Prerequisite: Consent of the Department. Introduction to accident/injury prevention emphasizing personal responsibility for health care with a focus on psychosocial development and a wellness approach to safety management. (*On demand*)

HLTH 4126. Adolescent Sexuality and Family Life Education. (3) Designed for teachers, counselors, school nurses, administrators and others responsible for family life education programs in school, with focus on adolescent sexuality issues. (*On demand*)

HLTH 4128. Environmental Health: A Global Perspective. (3) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through study of the causes and effects of contemporary environmental problems. (*On demand*)

HLTH 4136. Health Product and Service Consumerism. (3) Teaching methodology, knowledge and skills for affecting appropriate health behaviors through emphasis on

the individual consumer at the health marketplace. (*On demand*)

HLTH 4299. Epidemiology. (3) Prerequisite: Permission of the instructor. Traditional aspects of epidemiology, including practical disease concepts, epidemiological measures of health status, mortality and morbidity rates and ratios, descriptive statistics, research design, cohort studies, case-control studies, prospective, and retrospective analysis. (*Fall*)

HLTH 4300. Global Health Issues (3). Introduces general principles of international health including historical aspects, sources of international health data, environmental and social approaches to global health issues, and economic and policy issues. Features topics such as infectious disease; violence, war and genocide; famine and obesity; gender health issues; global health disparities. (*Spring*)

HLTH 4800. Independent Study. (1-6) Prerequisites: Permission of the instructor and the Department. Directed individual study that may take the form of initiating, designing, and conducting an original research problem, or a critique and synthesis of existing research. May be repeated for credit. (*On demand*)

HLTH 4900. Undergraduate Research. (1-4) Prerequisite: Consent of the Department. Enables juniors and seniors to initiate research projects in their field of interest. May be repeated for credit. (*On demand*)

UNIVERSITY HONORS PROGRAM (HONR)

All courses require permission of the University Honors Program

HONR 1100. Freshman Honors Seminar. (1). Prerequisite: Freshman standing in the University Honors Program. A course designed to introduce university honors students to scholarship, service, and leadership opportunities in the honors program, the university, and larger community. Class activities will include guest speakers, projects, and workshops. Students will create a final portfolio. (*Fall*)

HONR 1701. War, Peace, Justice and Human Survival. (3) Crosslisted as LBST 2101 Honors Section only. 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) (W) Crosslisted as LBST 2102 Honors Section only. 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 2701. Enrichment Seminar. (2) 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. Short written reports and class discussion required.

HONR 2750. Community Service Laboratory. (1) This laboratory experience complements the classroom learning associated with the four course University Honor sequence, Issues for the 21st Century. Its purpose is to 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. Emphasis is upon problems emergent with the interaction between volunteers and low income, less fortunate, undereducated populations involved. Impact of volunteerism upon human rights will be explored. Class discussion required.

HONR 3700. University Honors Topics. (3) A small discussion-oriented class team-taught by faculty members from different disciplines on interdisciplinary topics. *(On demand)*

HONR 3701. Science, Technology and Human Values. (3) Crosslisted as LBST 2213 Honors section only. 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. Human Rights and Social Justice. (3) (W) Multicultural examination of the foundations of laws which govern human communities and the means by which their authority is legitimated. Justice and Human rights concepts will be considered from the perspectives of a variety of intellectual traditions.

HONR 3750. Washington Experience. (3) A seminar-style, variable topics course, to be taught in Washington, D.C. as a part of the *UNC in Washington Program*. The course will explore the role of a national capital in the determination of public policy and national culture in a diverse democracy using Washington, D.C. as text. Enrollment limited to students currently participating in the *UNC in Washington Program* (completion of this course is considered to be in residence). *(Fall, Spring, Summer)*

HONR 3790. University Honors Thesis. (3) Prerequisites: Six hours of Honors course work and consent of thesis director and University Honors Committee. Honors project directed by faculty member. Students may also present thesis ideas for group discussion and critical feedback. May be repeated for credit.

INTERNATIONAL BUSINESS (IBUS)

IBUS 3000. Topics in International Business. (3) Prerequisites: Permission from the Director of Undergraduate International Business Programs. Topics from areas of international business. This course may be repeated for credit as topics vary. *(On demand)*

IBUS 3400. International Business Internship. (3) Prerequisites: This course is open to junior and senior International Business majors in good standing. It requires consent of the Director of Undergraduate International Business Programs (UIBP). The 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 UIBP. The internship requires 150 hours of supervised employment. Interested students should consult the UIBP Director to discuss availability of positions.

An internship proposal form, available from the UIBP Director, must be completed and approved prior to registration. The internship will be graded on a Pass/No Credit basis. IBUS 3400 cannot be repeated for credit or taken for credit at the same time or following any other internship for credit. *(Fall, Spring, Summer)*

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.) *(Fall, Spring, Summer) (Evenings)*

INFO 2231. Introduction to Business Programming. (3) Crosslisted as ITCS 2231. Pre/co-requisite: INFO 2130 or consent of the Department. This course focuses on 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. *(Fall, Spring, Summer)*

INFO 3000. Topics in Management Information Systems. (3) Prerequisite: INFO 3233 with a C or better. Topics from the area of Management Information Systems. May be repeated for credit. *(On demand)*

INFO 3130. Management Information Systems. (3) Prerequisites: FINN 3120; OPER 3100; MGMT 3140, MKTG 3110, 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. *(Fall, Spring, Summer) (Evenings)*

INFO 3200. Foundations in Business Computing. (3) Introduction to computer systems in business with emphasis on the capabilities of computer systems (hardware & software) and skills needed to effectively use computerized decision tools for typical business problems. (Cannot be taken for credit toward any undergraduate degree within the Belk College of Business.) *(On demand)*

INFO 3223. Business Database Systems. (3) Pre/corequisite: INFO 3231 with a C or better, or permission of department. A study of the effective management and utilization of organizational data resources in order to design and implement database management systems (DBMS) for business applications. Exploration of basic concepts of database systems and use of the computer to build and manipulate corporate databases. *(Fall, Spring)*

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INFO 3229. Business Data Communications. (3) Prerequisites: INFO 3231 with a C or better. A study of the current and potential impact of computer data communications technologies on business operations and productivity. Topics include identifying the need for and designing, planning and implementing of system solutions in such areas as text preparation and dissemination, document storage and retrieval, data communication technologies, telecommuting and teleconferencing, data communication networks, messaging and scheduling. *(Fall, Spring)*

INFO 3231. Business Applications Development. (3) Prerequisites: INFO/ITCS 2231 with a C or better and junior standing or permission of the 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. *(Fall, Spring)*

INFO 3232. International Information Systems Management. (3) Prerequisite: ITCS/INFO 2231 with a C or better and junior standing or permission of department. Study of issues and challenges relating to International Information Systems. Topics include: planning and strategic implications of using global information systems and technology; management of global information flows; and, the problems of integrating technology, systems, and people across the globe. *(On demand)*

INFO 3233. Business Database Systems. (3) Prerequisite/Corequisite: INFO 3231-Business Application Development with a C or better, or permission of the Department. A study of the effective management and utilization of organizational data resources in order to design and implement database management systems (DBMS) for business applications. Exploration of basic concepts of database systems and use of the computer to build and manipulate corporate databases. *(Fall, Spring)*

INFO 3234. Business Information Systems Development. (3) Prerequisites: INFO 3231 with a C or better and INFO 3233 with a C or better, or permission of the Department. Examination of the systems development process 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. *(Fall, Spring)*

INFO 3235. Advanced Business Information Systems Development. (3) Prerequisites: INFO 3234 with a C or better. Development of Business Information Systems. Emphasis on the development of computer applications as products of the systems development life cycle including the design and implementation phases of systems development, as accomplished through a major class project. *(Fall, Spring)*

INFO 3236. Business Decision Support Systems. (3) Prerequisites: INFO 3231, INFO 3233, and OPER 3100 or permission of the Department. A study of the application of the computer to middle and upper-level management processes to provide computer skills needed to implement such applications. Reading, discussion, and hands-on computer projects. *(On demand)*

INFO 3238. Current Issues in The Management of Information Systems. (3) Prerequisites: INFO 3130, MGMT 3140 or permission of the Department. Information systems and the management of information in an organization to provide exposure to the decision challenges presented to the corporate manager by the rapid development of information technology and to suggest useful constructs for dealing with them. An integrated, interactive approach to decision making. *(On demand)*

INFO 3240. Fundamentals of eBusiness. (3) Prerequisites: INFO 3234; or consent of the Department. 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. *(Fall, Spring)*

INFO 3500. Cooperative Education or 49ership Experience. (0) Enrollment in this course is required for the Department's cooperative education and 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. *(Spring, Summer, Fall)*

INFO 3800. Directed Study. (1-6) Prerequisites: Consent of the 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. *(On demand)*

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. *(Fall, Spring)*

INTL 2101. Introduction to African Studies. (3) Crosslisted as HIST 2211/AAAS 2221. 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. *(Fall)*

INTL 2201. Introduction to Asian Studies. (3) Crosslisted 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. *(Spring)*

INTL 2301. Introduction to European Studies. (3) Crosslisted as HIST 3116. Causes and results of World War

I, rise of new governments, collapse of collective security, World War II and the post-war period. *(Fall)*

INTL 2401. Introduction to Latin American Studies. (3) Crosslisted 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. *(Spring)*

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. *(On demand)*

INTL 3400. International Studies Internship. (1-3) Prerequisite: Consent of the Director. Practical experience and/or training related to the field of international studies. A minimum of 45 hours per credit. *(Fall, Spring)*

INTL 3800. Independent Study. (1-3) Prerequisite: Consent 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. *(Fall, Spring)*

INTL 4601. International Studies Seminar. (3) (W, O) 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. *(Fall, Spring)*

COMPUTER SCIENCE (ITCS)

ITCS 1101. Introduction to Computer Concepts. (3) Prerequisites or co-requisites: MATH 1100, 1101, or 1103. Introductory course for non-ITCS/IIS majors 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. (This course is not the equivalent of ITCS 1214 as a prerequisite for other computer science courses.) May not be taken while a computer science major (or minor). *(Fall, Spring, Summer) (Internet)*

ITCS 1200. Freshman Seminar (3) Crosslisted 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 IT 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. *(Fall)*

ITCS 1214. Introduction to Computer Science. (3) Prerequisites or co-requisites: MATH 1100, 1103, 1120, 1241 or consent of Department. Introduction to algorithmic problem solving strategies and algorithm development; basic concepts and terminology of computers; study of data representation and numbers systems; use of computers to implement numerical and symbolic algorithms. General programming concepts will be taught through the use of

high-level language. *(Fall, Spring, Summer) (Evenings) (Internet)*

ITCS 1215. Introduction to Computer Science II. (3) Prerequisite: ITCS 1214 with a grade of C or better, or permission of the Department. An advanced study of programming based on object oriented concepts. Extends the fundamentals studied in ITCS 1214. Includes a study of software design tools and advanced programming constructs, such as UML diagrams, decision tables, recursion, and dynamic storage allocation. Concepts are taught by means of an in-depth study of an object oriented language. *(Fall, Spring, Summer) (Evenings) (Internet)*

ITCS 2050. Topics in Computer Science. (1-3) Prerequisite: Consent of the Department. Topics in computer science selected to supplement the regular course offerings at the 2000 level. (May be repeated for credit with the consent of the Department.) *(On demand)*

ITCS 2116. C Programming. (3) Prerequisite: Knowledge of any other computer programming language or consent of the 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. *(Summer) Evenings)*

ITCS 2163. Introduction to File Processing. (3) Prerequisite: ITCS 1215. Concepts and techniques of structuring data on external storage devices; provides the foundation for applications of data structures and file processing techniques. *(Fall, Summer) (Evenings)*

ITCS 2181. Computer Logic and Design. (3) Prerequisite: ITCS 1214 or consent of the Department. Logic design; logic circuits; state diagrams; Karnaugh maps; memories; tristate devices; bus structures; and data control concepts. *(Fall, Spring, Summer) (Evenings)*

ITCS 2214. Data Structures. (3) Prerequisite: ITCS 1215 with a grade of C or better, or permission of the 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. *(Fall, Spring, Summer) (Evenings) (Internet)*

ITCS 2215. Design and Analysis of Algorithms. (3) Prerequisite: ITCS 2214, MATH 1165, and either MATH 1120 or 1241. 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. *(Fall, Spring, Summer) (Evenings)*

ITCS 2231. Introduction to Business Programming. (3) Crosslisted as INFO 2231. Pre/co-requisite: INFO 2130 or consent of the Department. This course focuses on 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. *(Fall, Spring, Summer)*

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ITCS 3050. Topics in Computer Science. (1-3)
Prerequisite: Consent of the Department. Topics in computer science at the upper-division level. May be repeated for credit as topics vary with the consent of the Department. *(On demand)*

ITCS 3102. 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, coroutines, and tasks. Functional programming, list processing, logic programming, object-oriented programming systems. *(Fall, Spring, Summer)(Evenings)*

ITCS 3110. Compiler Construction. (3) Prerequisites: 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. *(Spring, Alternate years)(Evenings)*

ITCS 3112. Design and implementation of Object-oriented Systems. (3) Prerequisite: ITCS 1215 or consent of the Department. 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. *(Spring)(Evenings)*

ITCS 3123. Introduction to Numerical Methods. (3)
Prerequisites: ITCS 1215 and MATH 1142. 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. *(On demand)*

ITCS 3134. Digital Image Processing. (3) Prerequisites: ITCS 2214, MATH 1242, and MATH 2164, with grades of C or better. 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. *(Fall)(Evenings)*

ITCS 3143. Operating Systems. (3) Prerequisite: ITCS 2214 or consent of the Department. Introduction to multiprogramming operating systems. Process synchronization and management of memory, devices, and files; performance evaluation. *(Fall, Spring, Summer)(Evenings)*

ITCS 3145. Introduction to Parallel Programming. (3)
Prerequisite: ITCS 1215. Programming parallel computers

and networks of workstations, parallel strategies, algorithms, and applications. *(Fall)(Evenings)*

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. *(Fall)(Evenings)*

ITCS 3153. Introduction to Artificial Intelligence. (3)
Prerequisite: ITCS 3152 or consent of the 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. *(Spring)(Evenings)*

ITCS 3155. Software Engineering. (3) Crosslisted as IT IS 3155. Prerequisite: ITCS 1215 or consent of the Department. The system development cycle is examined in detail from the aspects of software engineering. Current tools and techniques of systems design-data dictionary, data flow diagrams, structured walkthroughs, and capacity planning will be taught and presented in conjunction with case studies and class problems. *(Fall, Spring)(Evenings)*

ITCS 3160. Data Base Design and Implementation. (3)
Prerequisite: ITCS 1215 or consent of the 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. *(Fall, Spring)(Evenings)*

ITCS 3166. Distributed Computer Information Systems. (3) Prerequisite: ITCS 1215 or consent of the Department. Distributed vs. centralized processing. Data communications; speed; capacity, media, protocols. Network architectures. Distribution of data, computer power, and support. Evaluation of alternatives. Case studies. *(Fall, Spring, Summer)(Evenings)*

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. *(On demand)*

ITCS 3175. Logic and Algorithms. (3) Prerequisites: ITCS 1215 and MATH 1242. Introduction to propositional calculus; predicate calculus; algorithms; logic functions; finite-state machines; logic design. *(On demand)*

ITCS 3182. Computer Organization and Architecture. (3) Prerequisite: ITCS 2181 or consent of the Department. Machine level representation of data; von Neuman architecture; instruction sets and types; addressing types; assembly and machine language programming; control unit and microprogramming; alternate architectures. *(Fall, Spring, Summer)(Evenings)*

ITCS 3183. Hardware System Design. (3) Prerequisite: ITCS 3182 or consent of the Department. Design of hardwired control systems; processors and memory systems; application specific design; use of simulation tools. Laboratory intensive course. *(Spring) (Evenings)*

ITCS 3216. Introduction to Cognitive Science. (3) Crosslisted as PSYC 3216. Prerequisite: Consent of the 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. *(Spring, Alternate Years)*

ITCS 3590. Computer Science Cooperative Education and 49ership Experience. (0) This course is required of Co-op and 49ership students during the semester they are working. Participating students pay a registration fee for transcript notation. Assignments must be arranged and approved in advance. Course may be repeated. Evaluation is satisfactory/unsatisfactory. For more information, contact the University Career Center. *(Fall, Spring, Summer)*

ITCS 3650. Senior Project. (3) Prerequisites: senior standing, and two ITCS/ITIS 3XXX/4XXX courses with a grade of C or better, or consent of the 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. *(Fall, Spring) (Evenings)*

ITCS 3651. Senior Project. (3) Prerequisite: ITCS 3650. A continuation of ITCS 3650. *(Fall, Spring) (Evenings)*

ITCS 3681. Senior Design I. (3) Prerequisites: senior standing, and at least two ITCS/ITIS 3XXX/4XXX courses with a grade of C or better, or consent of the 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. *(Fall, Spring) (Evenings)*

ITCS 3682. Design II. (3) Prerequisites: ITCS 3681. A continuation of ITCS 3681. *(Fall, Spring) (Evenings)*

ITCS 3688. Computers and Their Impact on Society. (3) (W) Prerequisites: Junior standing and consent of the 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. *(Fall, Spring) (Evenings)*

ITCS 3690. Seminar. (1-6) Prerequisite: Consent of the Department. May be repeated for credit. *(On demand)*

ITCS 3691. Seminar. (1-6) Prerequisite: Consent of the Department. A continuation of ITCS 3690. May be repeated for credit. *(On demand)*

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. *(Fall, Spring, Summer)*

ITCS 3699. Senior Seminar. (1-3) Prerequisites: Senior standing and consent of the 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. *(On demand)*

ITCS 4010. Topics in Computer Science. (3) (On demand)

ITCS 4102. Survey of Programming Languages. (3) Prerequisite: Consent of the Department. Study of the concepts underlying various computer languages and comparing and evaluating various language features. History and development of various languages, such as FORTRAN, ALGOL, PASCAL, MODULA-2, C, C++, Ada, Lisp, Smalltalk, prolog.; evaluation and comparison of various algorithms and language suitability. Selection of languages for problems/environments. Overview of various languages. *(On demand)*

ITCS 4107. Formal Languages and Automata. (3) Prerequisites: one semester of discrete structures or consent of the Department. 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. *(On demand)*

ITCS 4110. Programming Languages and Compiler. (3) Prerequisite: Consent of the Department. 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. *(Spring) (Alternate years) (Evenings)*

ITCS 4112. Software System Design and Implementation. (3) Prerequisite: Consent of the Department. Introduction to the techniques involved in the planning and implementation of large software systems. Emphasis on human interface aspects of systems. Planning software projects; software design process; top-down design; modular and structural design; management of software projects; testing of software; software documentation; choosing a language for software system. *(Fall, Spring) (Evenings)*

ITCS 4120. Introduction to Computer Graphics. (3) Prerequisites: ITCS 2214 and MATH 2164 or consent 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. *(Spring; Fall on demand) (Evenings)*

ITCS 4128. Programming Languages and Compilers. (3) Prerequisite: Consent of Department. 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. *(On demand)*

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ITCS 4130. Computer Graphics. (3) Prerequisite: Consent of Department. Implicit and parametric representation; cubic surfaces; advanced reflection models; global illumination models - ray tracing, radiosity; shadow algorithms, texture mapping; volumetric modeling and rendering techniques; animation; advanced modeling techniques; particle systems, fractals. *(On demand)*

ITCS 4131. Simulation. (3) Prerequisites: MATH 3122 or consent of Department. Emphasis on the design and derivation of mathematical models of dynamic systems; deterministic simulation; random events; non-deterministic simulation; discrete simulation; comparison and optimization. *(On demand)*

ITCS 4141. Computer Organization and Architecture. (3) Prerequisite: ITCS 3182 or equivalent. Fundamentals of computer design; instruction set design, basic processor implementation techniques; pipelining; memory hierarchy; Input/Output. Cost/performance and hardware/software trade-offs. *(Fall, Spring) (Evenings)*

ITCS 4145. Parallel Computing. (3) Prerequisites: ITCS 1215 and 3182 or consent of Department. Types of parallel computers, programming techniques for multiprocessor and multicomputer systems, parallel strategies, algorithms, and languages. *(Spring) (Alternate years) (Evenings)*

ITCS 4151. Intelligent Robotics. (3) Prerequisites: ITCS 1215 and MATH 2164, or consent of the Department. General introduction to spatial descriptions and transformations, and manipulator position and motion. More study on robot planning, programming, sensing, vision, and CAD/CAM. *(On demand)*

ITCS 4152. Computer Vision. (3) Prerequisites: ITCS 1215 and MATH 2164, or consent of the Department. 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. *(On demand)*

ITCS 4157. Computer-Aided Instruction. (3) Prerequisite: Consent of the Department. History of CAI; study of current CAI systems; development of man-machine dialogue; programming tools for CAI; information structures for computer-oriented learning. Advantages/disadvantages/costs of CAI. *(On demand)*

ITCS 4181. Microcomputer Interfacing. (3) Prerequisite: ITCS 3182 or ECGR 3181 or permission of the Department. Signal conditioning, A/D conversion, noise, transmission line effects, signal processing, D/A conversion and serial/parallel interfaces. *(Fall, Alternate years) (Evenings)*

SOFTWARE AND INFORMATION SYSTEMS (ITIS)

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 IT 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. *(Fall) (Days)*

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. *(Fall, Spring) (Evenings)*

ITIS 2300. Web-Based Application Development. (3) Prerequisite: ITCS 1214, or consent of the 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. *(Fall)*

ITIS 3106. Structured System Analysis and Design. (3) Prerequisite: ITCS 1215 or consent of the 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. *(Summer) (Evenings)*

ITIS 3130. Human and Computer Interfaces. (3) Prerequisite: ITIS 2300 or consent of the Department. 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. *(Fall, Alternate years) (Evenings)*

ITIS 3131. Human and Computer Info Processing. (3) Prerequisite: ITIS 2300 or consent of the 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. *(On demand)*

ITIS 3132. Information Systems. (3) Prerequisite: ITIS 2300 or consent of the 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. *(On demand)*

ITIS 3200. Introduction to Information Security and Privacy. (3) Prerequisite: ITCS 1215 or consent of the 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) Pre-requisite: ITCS 2214, or consent of the 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 3310. Software Architecture and Design. (3) Prerequisite: ITCS 2214 or consent of the 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, will be introduced and used throughout the course.

ITIS 3320. Introduction to Software Testing and Assurance. (3) Prerequisite: ITIS 2214 or consent of the Department. Methods for 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 students during the semester they are working. Participating students pay a registration fee for transcript notation. Assignments must be arranged and approved in advance. Course may be repeated. Evaluation is satisfactory/unsatisfactory. For more information, contact the University Career Center. *(Fall, Spring, Summer)*

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. *(Fall, Spring, Summer)*

ITIS 4166. Network-based Application Development. (3) Prerequisite: ITIS 2300 or consent of the Department. This course 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. *(Fall, Spring)(Evenings)*

ITIS 4220. Vulnerability Assessment and Systems Assurance. (3) Prerequisite: ITIS 3200 or consent of the Department. This course discusses methodologies, tools, and technologies that are important for vulnerability assessment and systems assurance. Topics covered 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 will be 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. the course is based on case studies with a strong lab component. *(Fall, Spring)*

ITIS 4250. Computer Forensics. (3) Prerequisites: ITIS 2300 or consent of the 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. *(On demand)*

ITALIAN (ITLN)

ITLN 1201. Elementary Italian I. (4) Fundamentals of the Italian language, including speaking, listening comprehension, reading, and writing. *(Fall)*

ITLN 1202. Elementary Italian II. (4) Prerequisite: ITLN 1201 or permission of the Department. Fundamentals of the Italian language, including speaking, listening comprehension, reading, and writing. *(Spring)*

ITLN 2201. Intermediate Italian I. (4) Prerequisite: ITLN 1202 or permission of the Department. Review of grammar, conversation, and composition. *(On demand)*

ITLN 2202. Intermediate Italian II. (4) Prerequisite: ITLN 2201 or permission of the Department. Continued review of grammar, conversation, and composition. *(On demand)*

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. *(Fall, Spring, Summer)*

JAPN 1202. Elementary Japanese II. (4) Prerequisite: JAPN 1201 or permission of the Department. Continuation of JAPN 1201. *(Spring, Summer, Fall)*

JAPN 2201. Intermediate Japanese I. (4) Prerequisite: JAPN 1202 or permission of the Department. Acquisition of communicative competence in speaking, listening comprehension, reading, and writing at an intermediate level, with attention to cultural awareness. *(Fall)*

JAPN 2202. Intermediate Japanese II. (4) Prerequisite: JAPN 2201 or permission of the Department. Continuation of JAPN 2201. *(Spring)*

JAPN 3201. Advanced Japanese Grammar, Composition and Conversation I. (4) Prerequisite: JAPN 2202 or permission of the Department. Review of Japanese grammar and guided conversation on prepared topics. Emphasis on spoken Japanese. *(Fall)*

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JAPN 3202. Advanced Japanese Grammar, Composition and Conversation II. (4) Prerequisite: JAPN 3201 or permission of the Department. Review of Japanese grammar and guided compositions on prepared topics. Emphasis on vocabulary, idiomatic expressions, and stylistics. *(Spring)*

JAPN 3209. Japanese Civilization and Culture. (3) A study of the life and thought of Japanese-speaking people both past and present. *(Fall and/or Spring)*

JAPN 3800. Directed Individual Study. (1-3) Prerequisite: permission of the Department. Individual work on a selected area of study with the instructor, generally arranged during the preceding semester. May be repeated for credit. *(On demand)*

JAPN 4410. Professional Internship in Japanese. (1-6) Prerequisites: JAPN 3201 and 3202, or equivalent and consent of the 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. *(Fall, Spring, Summer)*

JOURNALISM (JOUR)

JOUR 2160. Introduction to Journalism. (3) 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. *(Fall, Spring, Summer)*

JOUR 3050. Topics in Journalism. (3) Prerequisite: JOUR 2160. Timely and important areas relevant to journalism. May be repeated with permission of journalism advisor. *(On demand)*

JOUR 3160. Advanced News Reporting and Writing. (3) Prerequisite: JOUR 2160 or permission of the 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. *(Fall, Spring)*

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. *(Spring)*

JOUR 3162. Feature Writing. (3) Prerequisite: JOUR 2160 or permission of the 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. *(Fall, Spring)*

JOUR 3163. Visual Communication in Media. (3) Prerequisite: JOUR 2160 or consent of the 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. *(Fall, Spring)*

KINESIOLOGY (KNES)

KNES 1099. Topics in Games/Exercise/Sports. (1) Specialized topics or innovations in games, exercise and sports. May be repeated for credit as topics vary. *(On demand)*

KNES 1201. Foundations of Physical Conditioning. (1) The application and basic science of physical training programs designed to improve and maintain physical fitness. *(Fall, Spring)*

KNES 1202. Weight Training. (1) Mechanics and programming of weight training. *(Fall, Spring, Summer)*

KNES 1203. Fencing. (1) The skills and rules of the sport of fencing. *(On demand)*

KNES 1204. Aerobic Fitness. (1) Exercise designed to develop and maintain physical fitness through aerobic activity to music. *(Fall, Spring)*

KNES 1206. Adaptive and Development Physical Education. (1) Prerequisite: permission of the instructor. Prescribed ameliorative exercises adapted to individual needs, capacities and interests. Designed for the individual with anatomical and functional defects. *(On demand)*

KNES 1208. Walk, Jog, Run. (1) Application of exercise science and art principles to the safety and effectiveness of walking, jogging and running as models for improving and maintaining cardiovascular health and physical fitness. *(Fall, Spring)*

KNES 1209. Step Aerobics. (1) Physical fitness training emphasizing aerobic conditioning via variations and combinations of step patterns performed on adjustable exercise benches and the safety and benefits of low impact movements. *(Fall, Spring)*

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. *(Fall, Spring)*

KNES 1211. Intermediate Swimming. (1) Emphasis on gaining competency in at least four basic strokes and increasing endurance. *(Fall, Spring)*

KNES 1215. Aquatic Fitness. (1) Application of exercise science and art principles to the safety and effectiveness of aquatic exercise as a mode for improving and maintaining general health and physical fitness. *(Fall, Spring)*

KNES 1220. Beginning Tennis. (1) The rules, basic skills and strategy. *(Fall)*

KNES 1222. Racquet Sports. (1) Basic skills, tactics, safety and rules of racquetball, court and table tennis, squash and badminton. *(Spring)*

KNES 1223. Beginning Badminton. The rules, basic skills and strategy. *(On demand)*

KNES 1231. Introduction to Outdoor Adventure. (1) An introduction to outdoor adventure through participation in a variety of weekend outdoor trips offered by Venture. Discussions and written reflection will expand students' sense of self, and their connection with others and with the natural environment. A special fee will be charged to cover the costs of the weekend trips. *(Fall, Spring)*

KNES 1232. Orienteering. (1) Introduction of off trail navigation with emphasis in the use of topographic maps, compasses, and route finding for wilderness travel; and the sport of competitive orienteering. Weekly class and 1 or 2 Saturday meets. *(Spring) (Alternate years)*

KNES 1233. Rock Climbing. (1) Introduction to rock climbing with emphasis on belaying and safety systems, climbing techniques, and the metaphorical and psychological aspects of climbing. Course will include: 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. *(Fall, Spring)*

KNES 1234. Canoeing. (1) Prerequisite: Successful completion of water safety test. Introduction to canoeing on flat water and white water emphasizing basic strokes, river reading, and boating safety. 10 classroom sessions and 2 weekend days. *(Spring)*

KNES 1235. Challenge Course Activities. (1) 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. *(Spring)*

KNES 1240. Beginning Golf. (1) The grip, stance, stroke, use and selection of clubs, rules and etiquette. *(Fall, Spring)*

KNES 1242. Archery. (1) The fundamental skills and selection, care and repair of equipment. *(On demand)*

KNES 1250. Volleyball. (1) The rules, fundamental skills and strategies. *(Fall, Spring)*

KNES 1262. Recreational Dance. (1) Social and partner dancing in a recreational setting. Basic knowledge of dance steps, dance music, style, leading/following techniques, plus current popular variations. *(On demand)*

KNES 1263. Body Shaping. (1) Selected methods of resistive exercises used to shape, tone and define musculature. Symmetry, body alignment and flexibility, augmented by the use of hand-held weights bands, benches, and partners in a gymnasium setting. *(Fall, Spring)*

KNES 2150. Introduction to Kinesiology. (3) Introduction to the study of health fitness relative to philosophies, practices, work settings, trends, knowledge bases, skills and licensures. *(Fall, Summer)*

KNES 2212. Lifeguarding. (2) The knowledge and skills associated with lifeguarding. Qualifying students will receive the American Red Cross Lifeguarding Certificate. *(Fall, Spring)*

KNES 2213. Water Safety Instruction. (3) Prerequisite: Competency in all basic swimming strokes. Techniques used in teaching people aquatic skills. Qualifying students will receive the American Red Cross Water Safety Instructor's rating. *(Spring)*

KNES 2219. Scuba Diving. (2) Corequisite: KNES 2219L. The science associated with the use of self-contained underwater breathing apparatus. Students who demonstrate the required knowledge and skills may request licensure as an open water SCUBA diver. *(Fall, Spring, Summer)*

KNES 2219L. Scuba Diving Laboratory. (1) Corequisite: KNES 2219. Prerequisite: appropriate swimming ability to current scuba standards as prescribed by recognized scuba certifying organizations. The skills associated with the use of self-contained underwater breathing apparatus. *(Fall, Spring, Summer)*

KNES 2220. Advanced Scuba Diving. (1) Prerequisite: Certified Open Water Diver or licensure as a Basic SCUBA Diver with a minimum of 10 logged dives. The knowledge and skill required for underwater navigation, search and recovery, limited visibility diving and deep diving. Advanced Open Water Diver Licensure will be granted to students who qualify. *(Fall, Spring, Summer)*

KNES 2230. Wilderness Experience. (3) Co-requisite: KNES 2230L. This course is, in essence, a semester-long Outward Bound experience. It uses a variety of group experiences and adventure activities, including backpacking trips and challenge courses. The goal is a deeper understanding of oneself and of life itself through participation in an in-depth group experience. Significant attention is given to self reflection. Field experiences during class and two weekend trips. *(Fall)*

KNES 2230L. Wilderness Experience Lab. (1) Co-requisite: KNES 2230. The lab will focus on the skills and knowledge necessary for planning and conducting one's own backpacking trips. The lecture course (KNES 2230) uses the experiences from the lab to increase self knowledge. Two weekend backpacking trips are included. A special fee will be charged to cover the costs of the trips. *(Fall)*

KNES 2232. Wilderness Trip Leading. (1) Prerequisite: KNES 1231 or 2230 or permission of instructor. The focus is on the broadly accepted skills and knowledge necessary for leading group adventure trips. Includes weekend backpacking trip and weekend trainings. After successful completion of this course, students will be eligible to assist with Venture trips. A special fee will be charged to cover the costs of the trips. *(Spring)*

KNES 2234. Challenge Course Facilitation. (1) Prerequisite: KNES 1235 or 2230 or permission of instructor. The focus is on the basic skills and knowledge necessary for safely and effectively leading groups through team challenge courses. In addition to classroom sessions, weekend trainings at the Team Challenge Course and observation/apprenticing of actual Venture programs are required. *(Fall, Spring)*

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KNES 2251. Introduction to Human Movement: A Personal Approach. (3) Selected methods of observing and analyzing human movement via self-observation and study. *(On demand)*

KNES 2290. General Safety and First Aid Procedures. (3) Issues associated with safety management, identification and evaluation of trauma situations to support implementation of effective emergency procedures. American Red Cross Standard First Aid and Cardiopulmonary Resuscitation requirements may be met. *(Fall, Spring, Summer)*

KNES 2294. Care and Prevention of Athletic Injuries. (3) Prerequisite or corequisite: KNES 2290. Focus on the health care competencies necessary for the prevention, emergency management and acute care of athletic related injuries. Also provides an introduction to the allied health care role of the Certified Athletic Trainer. *(Spring)*

KNES 2295. Care and Prevention of Athletic Injuries Laboratory. (1) Corequisite: KNES 2294. Focus on the psychomotor competencies and clinical proficiencies necessary for the prevention, emergency management and acute care of athletic related injuries. *(Spring)*

KNES 3099. Movement Problems/Topics. (1-6) Prerequisite: consent of instructor. Movement problems/topics chosen by the student which relate to special areas of interest. May be repeated for credit with approval of instructor. *(Fall, Spring, Summer)*

KNES 3100. Health Fitness Leadership and Instruction. (3) Prerequisite: KNES 1201. This course introduces principles and methods of leadership. Includes programming and participation, teaching methods, assessment, supervision, and leadership for various types of individual and group health and fitness programs. This course will also review basic health fitness principles and provide the student with the knowledge and skills to lead a wide variety of related activities. *(Fall)*

KNES 3152. Health and Safety Issues in Middle and Secondary Schools. (2) Prerequisites: Junior or senior status, EDUC 2100 and SPED 2100. Provides the pre-service teacher with the curricular content of health and safety in grades 6-12. Focuses on knowledge and behaviors conducive to health and safety. *(Fall, Spring, Summer)*

KNES 3200. Special Physical Education for the Mentally Handicapped Child. (3) Prerequisite: admission to teacher education program. Study of movement potentials and limitations of mentally handicapped children and teaching skills necessary to use movement as a medium for physical, social and emotional development. *(On demand)*

KNES 3228. Integrating Physical Activity and Movement Into Elementary Schools. (2) Prerequisites: EDUC 2100, 3120, and SPED 2100 or admission into the Teacher Education Program. Movement and physical activity for elementary school children. *(Fall, Spring, Summer)*

KNES 3229. Teaching Health and Safety In the Elementary School. (2) Prerequisites: Junior or senior status, EDUC 2100, 3120, and SPED 2100. Orientation of the elementary specialist to content and curriculum

appropriate for teaching health education in grades K-6. *(Fall, Spring, Summer)*

KNES 3233. Movement Experiences for Elementary School Children. (3) Prerequisites: EDUC 2100, 2110 and 2150. Study of movement and physical activities as applied in the elementary school program. *(On demand)*

KNES 3251. Human Movement. (3) Prerequisite: KNES 2251 or permission of instructor. Analysis and application of basic movement in specific sport, dance, gymnastic, and aquatic skills. *(On demand)*

KNES 3260. Nutrition and Health Fitness. (3) Prerequisites: CHEM 1204, 1204L and KNES 2101. Introduction to principles and concepts of nutrition and how dietary practices affect health and disease. *(Fall)*

KNES 3280. Foundations of Exercise Physiology. (3) Prerequisite: BIOL 1273, 1273L, 1274 and 1274L. Physiological foundations of programming exercise for health fitness with emphasis on acute physiological responses to bouts of exercise and chronic physiological responses and adaptations to repeated exercise and programs of exercise. *(Fall)*

KNES 3281. Exercise Physiology Laboratory. (1) Corequisite KNES 3280. Laboratory experiences and assignments to enhance the lecture material presented in KNES 3280. One laboratory period of two hours a week or two one hour labs. *(Fall)*

KNES 3285. Conditioning for Maximum Sports Performance. (3) Prerequisite: KNES 2290 or consent of instructor. A study of biomechanical and physiological principles of conditioning for maximum sports performance. Two lecture and three laboratory hours. *(On demand)*

KNES 3286. Exercise Testing. (3) Prerequisite Successful completion of KNES 3280 and KNES 3281. Corequisite: KNES 3287. This course is designed to teach 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. *(Spring)*

KNES 3287. Exercise Testing Lab. (1) Corequisite: KNES 3286. Practitioner lab in the use of appropriate data collection methods and protocols. *(Spring)*

KNES 3288. Upper Body Injury Evaluation. (3) Prerequisite: Acceptance into the Athletic Training Education Program. An upper division athletic training course focusing on orthopedic evaluation competencies for assessing athletic related injuries to the upper extremities, cervical and thoracic spine. *(Fall)*

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 evaluations. *(Fall)*

KNES 3290. Lower Body Injury Evaluation. (3) Prerequisites: Acceptance into the Athletic Training Education Program. An upper division athletic training course focusing on orthopedic evaluation competencies for

assessing athletic related injuries to the lower extremities and lumbar spine. *(Fall)*

KNES 3291. Therapeutic Modalities. (3) Prerequisites: KNES 3288, KNES 3289, KNES 3290, and KNES 3295. A study of the theories and techniques of therapeutic modalities within the scope of athletic training. *(Spring)*

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. *(Spring)*

KNES 3293. General Medical and Psychosocial Aspects of Athletic Training. (3) Prerequisites: KNES 3288, KNES 3289, KNES 3290, KNES 3295. Study of 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. *(Spring)*

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. *(Fall)*

KNES 3400. Athletic Training Clinical I. (2) Prerequisites: Acceptance into the Athletic Training Education Program. Acquisition and application of clinical proficiencies and psychomotor competencies necessary for the entry-level athletic trainer. Students must complete 15-20 hours of clinical experience per week at an assigned athletic training clinical agency. *(Fall)*

KNES 3401. Athletic Training Clinical II. (2) Prerequisite: KNES 3400. Continuation of KNES 3400. Students must complete 15-20 hours of clinical experience per week at an assigned athletic training clinical agency. *(Spring)*

KNES 4121. Health Fitness Pharmacology. (3) Prerequisite: KNES 2101. The course entails an examination of the historical aspects of use, abuse, and addiction within the realm of health and human performance. This course will expose students to a wide variety of drug issues and the unique use and abuse patterns of individuals in the health fitness arena. *(Fall)*

KNES 4130. Applied Nutrition for Today's Consumer. (3) Principles of nutrition, dietary guidelines, dietary relationships to diseases and health, special populations, computerized dietary analysis. *(2 year cycle)*

KNES 4132. Lifetime Weight Management. (3) Prerequisites or corequisites: KNES 3260. Examines factors in obesity and weight control, emphasizing techniques in behavior modification and lifestyle change for effective weight management. *(Spring)*

KNES 4134. Assessment and Development of Physical Fitness. (3) Prerequisite: consent of the instructor. Study of responses and adaptations to exercise, assessment techniques, exercise prescription, leadership and programming. *(2 year cycle)*

KNES 4204. Perceptual Motor Development. (3) Theories, principles and research related to perceptual motor development of children. *(On demand)*

KNES 4205. Perceptual Motor Learning. (3) Prerequisite or corequisite: KNES 4204 or consent of instructor. Perceptual-motor learning of children and its effect on school performance and the relationships of perceptual-motor development to reading, writing and mathematics. *(On demand)*

KNES 4208. Perceptual Motor Therapy. (3) Prerequisite: KNES 4205 or consent of the instructor. Observation of and evaluation and therapy for children with perceptual-motor delays. *(Fall, Spring)*

KNES 4210. Perceptual Motor Therapy Laboratory. (1) Prerequisite/corequisite KNES 4204 or 4205 or 4208. *(Fall, Spring)*

KNES 4211. Perceptual Motor Therapy Laboratory. (2) Prerequisites/corequisite: KNES 4204 or 4208. *(Fall, Spring)*

KNES 4212. Perceptual Motor Therapy Laboratory. (3) Prerequisite: KNES 4208, 4210, or 4211 and permission of instructor. Supervised observation, testing and clinical teaching of children with perceptual-motor dysfunction.

KNES 4286. Exercise Prescription. (3) Prerequisite Successful completion of KNES 3286 and KNES 3287. This course is designed to teach the interpretation and prescription of exercise and various fitness parameters for programs with healthy populations and general clinical populations. *(Fall)*

KNES 4290. Therapeutic Exercise. (3) Prerequisites: KNES 3291 and KNES 3292. Study of the theories and techniques of therapeutic exercise within the scope of athletic training. *(Fall)*

KNES 4291. Therapeutic Exercise Laboratory. (1) Corequisite: KNES 4290. Practitioner lab focusing on the psychomotor competencies and clinical proficiencies related to the use of therapeutic exercise within the scope of athletic training. *(Fall)*

KNES 4292. Administration of Athletic Training Programs (3). Prerequisites: KNES 3291, KNES 3294. Athletic training organization and administration. *(Spring)*

KNES 4294. Biomechanics. (3) Prerequisites: BIOL 1273, 1273L, 1274, 1274L and KNES 2280. Corequisite: KNES 3293L. Mechanical and anatomical kinesiology as it relates to human movement with emphasis on anatomical structures, mechanics, and common injuries involved with selected sport movements. Requires preparation of a paper on a biomechanical analysis of a sport movement or injury. *(Fall)*

KNES 4294L. Biomechanics Lab. (1) Corequisite: KNES 4293. Laboratory experiences and assignments to enhance the lecture material presented in KNES 3293. One laboratory period of two hours a week or two one hour labs. *(Fall)*

KNES 4400. Athletic Training Clinical III. (2) Prerequisite: KNES 3401. Acquisition and application of advanced clinical proficiencies and psychomotor

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competencies necessary for the entry-level athletic trainer. Students must complete 15-20 hours of clinical experience per week at an assigned athletic training clinical agency. *(Fall)*

KNES 4401. Athletic Training Clinical IV. (2)
Prerequisite: KNES 4400. Continuation of KNES 4400. Students must complete 15-20 hours of clinical experience per week at an assigned athletic training clinical agency. *(Spring)*

KNES 4490. Health Fitness Senior Internship. (6-15)
Prerequisites: Completion of all other courses for the major. Application of acquired knowledge and skills in practitioner settings. Each 3 hours of credit requires a minimum of 8 contact hours per week at the internship site. *(Fall, Spring, Summer)*

KNES 4660. Practitioner Seminar. (3) (W) (O)
Prerequisites: COMM 1101, COMM 2105 and must be taken during the term prior to internship (KNES 4490). Emphasis is on state of the art health enhancement practices. *(Fall)*

LATIN (LATN)

LATN 1201. Elementary Latin I. (4) Beginning survey of elementary Latin grammar through selected readings. *(Fall)*

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. *(Spring)*

LATN 2201. Latin Prose. (3) Prerequisite: LATN 1202 or equivalent. Extended selected readings in Latin prose of intermediate difficulty: Caesar, Nepos, or Seneca. *(Offered online on demand)*

LATN 3800. Directed Individual Reading. (1-3)
Prerequisite: permission of instructor. Individual work on an author or genre to be arranged with the instructor. *(On demand)*

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 folk and ethnic dance traditions from around the world in terms of functionality; how 20th 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. *(Fall, Spring)*

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. *(Fall, Spring, Summer)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring)*

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. *(Fall, Spring, Summer)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring)*

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. *(Fall, Spring)*

LBST 2215. Citizenship. (3) 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. The course 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. *(Fall, Spring)*

LATIN AMERICAN STUDIES (LTAM)

LTAM 1100. Introduction to Latin America. (3) (O) An introductory, interdisciplinary survey of the field of Latin American Studies. Course will 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. *(Fall, Spring)*

LTAM 2000. Topics in Latin American Studies (3) Analysis of a selected topic related to Latin American Studies. The particular topic of the course may vary from semester to semester. A student may repeat the course for credit as topics vary. *(On demand)*

LTAM 2116. Contemporary Latin America. (3) (W) Crosslisted as ANTH 2116. Prerequisite: None. 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. *(Alternate years)*

LTAM 2152. New World Archaeology. (3) Crosslisted as ANTH 2152. Prehistory of North America; Paleoindians, Eastern United States, Southwest, Mexico; archeological methods and theory. *(Spring)*

LTAM 2206. Colonial Latin America. (3) Crosslisted as HIST 2206. A survey of major political, economic, and cultural developments from earliest times to 1826. *(Yearly)*

LTAM 2207. Modern Latin America. (3) Crosslisted 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. *(Yearly)*

LTAM 3000. Advanced Topics in Latin American Studies. (3) Analysis of a selected topic related to Latin American Studies. The particular topic of the course may vary from semester to semester. A student may repeat the course for credit as topics vary. *(On demand)*

LTAM 3129. Cultural Dimension of Doing Business with Spanish-Speaking Countries (3) Crosslisted as SPAN 3029. Prerequisite: ENGL 1102 or 1103. Development of cultural awareness for conducting business with Spanish-speaking countries and U.S. Hispanic communities. Course conducted in English. *(On demand)*

LTAM 3144. Latin American Politics. (3) Crosslisted 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. *(Yearly)*

LTAM 3154. Political Economy of Latin America. (3) Crosslisted 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. Includes issues such as debt management, dependency theory, impact of free market theories, and the power of labor movements. *(Yearly)*

LTAM 3164. U.S.-Latin American Relations. (3) Crosslisted 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. *(Yearly)*

LTAM 3190. The Political Economy of the Caribbean. (3) Crosslisted as AAAS 3190. An examination of the manifestations of Caribbean economic problems and policies and Caribbean political development from the post-war period to the present. *(Fall)*

LTAM 3260. The United States and Latin America. (3) Crosslisted as HIST 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. *(Alternate years)*

LTAM 3274. Resistance and Adaptation: Indian Peoples Under Spanish Rule. (3) Crosslisted 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. *(Alternate years)*

LTAM 3275. Reform, Riots, and Rebellions in Colonial Spanish America, 1692-1825. (3) Crosslisted 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. *(Alternate years)*

LTAM 3276. History of Mexico. (3) Crosslisted 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. *(Alternate years)*

LTAM 3277. The Cuban Revolution. (3) Crosslisted 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. *(Alternate years)*

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LTAM 3278. History of Brazil. (3) Crosslisted as 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. (*Alternate years*)

LTAM 3279. Authoritarianism in Latin America. (3) Crosslisted 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 as topics vary. (*Alternate years*)

LTAM 3309. Masterpieces of Hispanic Literature in English Translation. (3) Crosslisted as SPAN 3009 if course is on Latin America topic. Prerequisites: sophomore standing and ENGL 1102. Advanced studies of Spanish or Spanish-American literature in English translation. May be repeated for credit as topics vary. Course conducted in English

LTAM 3310. Spanish American Civilization and Culture. (3) Crosslisted as SPAN 3210. Prerequisite: SPAN 2202 or permission of Department. Introduction to the cultural heritage of Spanish America. (*Alternate semesters*)

LTAM 3312. Introduction to Spanish American Literature. (3) Crosslisted as SPAN 3212. Prerequisite: SPAN 2202 or permission of the Department. Introduction to Spanish American literature from the 16th century through the contemporary period. (*Spring*)

LTAM 3313. Pre-Columbian Art. (3) Crosslisted as ARTA 3112. Survey of the arts and architecture of the Americas before European contact in the 16th 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. (*Fall*) (*Alternate years*)

LTAM 3319. Hispanic Women Writers in English Translation. (3) (W) Crosslisted as SPAN 3019. Prerequisites: sophomore standing and ENGL 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. (*On demand*)

LTAM 3360. Studies in Hispanic Film (3). Crosslisted 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 as topics vary. (*Yearly*)

LTAM 3400 Latin American Studies Internship. (1-3) Prerequisite: consent of the coordinator. Practical experience and/or training related to Latin American studies. A minimum of 45 hours per credit. (*On demand*)

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. (*On demand*)

LTAM 4116. Culture and Conflict in the Amazon (3). Crosslisted as ANTH 4116. Prerequisite: None. This course 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. (*On demand*).

LTAM 4120. Advanced Business Spanish I. (3) Crosslisted as SPAN 4120. Prerequisites: SPAN 2210, 3201 and an additional 3000- or 4000 level course (3202 recommended), or permission of the 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. (*Fall*)

LTAM 4121. Advanced Business Spanish II. (3) Crosslisted as SPAN 4121. Prerequisites: SPAN 2210, 3201 and an additional 3000- or 4000 level course (3202 recommended), or permission of the 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. (*Spring*)

LTAM 4302. Caribbean Literature in English. (3) Crosslisted as AAAS 4102. Prerequisite: junior standing and at least one course in AAAS for AAAS majors. Topics include: loneliness, quest for identity, nationalism, protest, and the use of patois. (*On demand*)

LTAM 4310. Studies in Spanish American Poetry. (3) Crosslisted as SPAN 4210. Prerequisites: two 3000 level courses or permission of the Department. Studies of 19th- and 20th-century Spanish American poetry. (*Alternate years*)

LTAM 4311. Studies in Spanish American Prose Fiction. (3) Crosslisted as SPAN 4211. Prerequisites: two 3000 level courses or permission of the Department. Studies of 19th- and 20th-century Spanish American prose fiction. (*Alternate years*)

LTAM 4312. Studies in Spanish American Theater. (3) Crosslisted as SPAN 4212. Prerequisites: two 3000 level courses or permission of the Department. Studies of 20th-century Spanish American theater. (*On demand*)

LTAM 4350. Studies in Latin American Literature. (3) Crosslisted as SPAN 4050. Prerequisites: two 3000 level courses or permission of the Department. Study of a predetermined topic in Latin American literature. May be repeated for credit as topics vary (*On demand*)

***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. (*Spring*)

LTAM 4700 Senior Honors Thesis. (3-6) Prerequisite: senior standing, an overall minimum GPA of 3.25, and permission of the Coordinator of Latin American Studies. The preparation and presentation of an acceptable honors thesis. (*On demand*)

MATHEMATICS (MAED)

MAED courses offered by the Department of Mathematics and Statistics are intended primarily 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: Consent of the Department. Special topics in mathematics education for grades K-6. May be repeated for credit as topics vary. *(On demand)*

MAED 3040. Topics in Mathematics Education, Middle Grades. (1-6) Prerequisite: Consent of the Department. Special topics in mathematics education for middle grades. May be repeated for credit as topics vary. *(On demand)*

MAED 3070. Topics in Mathematics Education, Secondary. (1-6) Prerequisite: Consent of the Department. Special topics in mathematics education at the secondary level. May be repeated for credit as topics vary. *(On demand)*

MAED 3103. Using Technology to Teach Secondary School Mathematics. (3) Prerequisite: Consent of the Department. Technology is a tool for exploring mathematical ideas and representing mathematical concepts, including lab assignments related to using technology throughout the secondary school mathematics curriculum. *(Spring)*

MAED 3105. Geometry in the Secondary School Mathematics Curriculum. (3) Prerequisite: Consent of the Department. Study of geometry from synthetic, transformational, and algebraic perspectives including activities and software to enhance the conjecture/theorem/proof process. *(Fall)*

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, on and 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 3232. Teaching Mathematics to Middle School Learners. (3) Prerequisites: Admission to Teacher Education and Senior Standing. Corequisite: EDUC 4290. Preparation to teach mathematics at the middle school level

with emphasis on problem solving, mathematical connections, manipulatives, cultural diversity, and assessment, including school-based field experiences.

MAED 3252. Teaching Mathematics to Secondary School Learners. (3) Prerequisite: Admission to Teacher Education or consent of the Department. Secondary school mathematics and its relation to the curriculum K-12. Teaching strategies and activities in secondary school mathematics with emphasis on problem solving, mathematical connections, communication, discourse, and assessment, including school-based field experiences. *(Fall) (Evenings)*

MATHEMATICS (MATH)

All MATH/STAT/OPRS courses offered by the Department of Mathematics and Statistics are approved to satisfy requirements for the Problem Solving Goal of UNC Charlotte Education.

MATH 0900. Math Study Skills and Algebra Review. (1) This course prepares the student 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 into this course is based on the score on the Mathematics Placement Exam which is administered by the Mathematics Department.

MATH 1100. College Algebra and Probability. (3) Prerequisite: appropriate score on the Mathematics Placement Test or placement by the Department. The basic mathematics course for undergraduates not majoring in Mathematics, Engineering, or the Physical Sciences. Fundamental concepts of algebra. (Credit may not be given for both MATH 1100 and 1103; students who already have credit for MATH 1120, 1121, or 1241 with a grade of C or better may not take 1100 for credit.) *(Fall, Spring, Summer) (Evenings)*

MATH 1102. Introduction to Mathematical Thinking. (3) Prerequisite: appropriate score on the Mathematics Placement Test 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. *(Fall, Spring)*

MATH 1103. Precalculus Mathematics for Science and Engineering. (3) Prerequisite: appropriate score on the Mathematics Placement Test 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. (Credit may not be given for both MATH 1100 and 1103; students who already have credit for MATH 1120, 1121, or 1241 with a grade of C or better may not take MATH 1103 for credit.) *(Fall, Spring, Summer) (Evenings)*

MATH 1105. Finite Mathematics. (3) Prerequisite: appropriate score on the Mathematics Placement Test or placement by the Department. Review of high school algebra, elementary matrix algebra, systems of linear

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equations and inequalities, elementary linear programming; probability. (*On demand*)

MATH 1120. Calculus. (3) Prerequisite: appropriate score on the Mathematics Placement Test, MATH 1100 or 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 if credit has been received for MATH 1121 or 1241.) (*Fall, Spring, Summer*) (*Evenings*)

MATH 1121. Calculus (ET). (3) Prerequisite: appropriate score on the Mathematics Placement Test; MATH 1100 or 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 if credit has been received for MATH 1120 or 1241. (*Fall, Spring*) (*Evenings*)

MATH 1165. Introduction to Discrete Structures. (3) Prerequisite: ITCS 1214. Propositions and truth tables, sets, permutations and combinations, relations and functions, lattices, and trees. (*Fall, Spring, Summer*) (*Evenings*)

MATH 1241. Calculus I. (3) Prerequisite: appropriate score on the Mathematics Placement Test; MATH 1103 with a grade of C or better, or placement by the Department. Designed for students majoring in Mathematics, Science, or Engineering. Elementary functions, derivatives and their applications, introduction to definite integrals. (*Fall, Spring, Summer*) (*Evenings*)

MATH 1242. Calculus II. (3) Prerequisite: MATH 1241 with a grade of C or better. Methods for evaluating definite integrals, applications of integration, improper integrals, infinite series, Taylor series, power series, and introduction to differential equations. (*Fall, Spring, Summer*) (*Evenings*)

MATH 2050. Topics in Mathematics. (2-3) Prerequisite: consent of the Department. Topics in mathematics elected to supplement regular offerings at the 2000 level. (May or may not count for a Math core course for the ITCS major.) May be repeated for additional credit with the approval of the Department. (*On demand*)

MATH 2164. Matrices and Linear Algebra. (3) Prerequisite: MATH 1120 or 1241 with a grade of C or better or consent of the Department. Matrix algebra, systems of linear equations, vector spaces, linear transformations, determinants, inner products, eigenvalues. (*Fall, Spring, Summer*) (*Evenings*)

MATH 2171. Differential Equations. (3) Prerequisite: MATH 1242 with a grade of C or better. 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. (*Fall, Spring, Summer*) (*Evenings*)

MATH 2241. Calculus III. (3) Prerequisite: MATH 1242 with a grade of C or better. Functions of two or more variables, vectors in two and three dimensions, partial

derivatives, optimization, double and triple integrals and their applications. (*Fall, Spring, Summer*) (*Evenings*)

MATH 2242. Calculus IV. (3) Prerequisite: MATH 2241 with a grade of C or better. 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. (*Fall, Spring*) (*Evenings*)

MATH 2340. Number Concepts and Relationships. (3) Prerequisite: MATH 1100 or MATH 103 with a grade of C or better or consent of the 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). (*Spring*)

MATH 2341. Algebra and Algebraic Structures. (3) Prerequisites: MATH 2340 with a grade of C or better or MATH 2102 with a grade of C or better or consent of the 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. (*Fall*)

MATH 2342. Data Analysis and Probability. (3) Prerequisite: STAT 1220 or STAT 1222 with a grade of C or better or consent of the 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). (*Spring*)

MATH 2343. Geometry and Measurement. (3) Prerequisite: MATH 1100 or MATH 1103 with a grade of C or better or consent of the 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). (*Fall*)

MATH 3050. Selected Topics in Mathematics. (2-3) Prerequisite: Consent of the Department. Topics selected to supplement regular offerings at the 3000 level in mathematics or statistics. May be repeated for credit with the approval of the Department. (*On demand*)

MATH 3116. Graph Theory. (3) Prerequisite: MATH 2164 or consent of the Department. Graphs as mathematical models. Planarity, colorability, connectivity, trees. Applications and algorithms for networks, matching problems and areas of computer science. (*Fall*) (*Alternate years*)

MATH 3122. Probability and Statistics I. (3) Prerequisite: MATH 2241 with a grade of C or better. Sample spaces, random variables, moment generating functions, some

standard distributions, multivariate distributions, laws of large numbers, limit theorems. (Fall) (Evenings)

MATH 3123. Probability and Statistics II. (3) Prerequisite: MATH/STAT 3122. Estimation, bias, consistency, efficiency, maximum likelihood estimates, sufficient statistics, testing, the power function, chi-square test, Kolmogorov-Smirnov test. Credit for mathematics major not given for both MATH 3125 and MATH/STAT 3123. (Spring) (Evenings)

MATH 3128. Actuarial Science I. (3) Prerequisites: MATH 3122 or the consent of the Department. The mathematical theory of compound interest. The theory and application of contingency mathematics in the life and casualty areas. Probabilistic and deterministic models for annuities and pensions. (Fall)

MATH 3129. Actuarial Science II. (3) Prerequisites: MATH 3128 or the consent of the Department. Deterministic and probabilistic models for annuities and pensions, additional models of risks and financial transactions. (Spring)

MATH 3141. Advanced Calculus of One Variable. (3) Prerequisites: MATH 2241 and 2164 with grades of C or better. Topology of the real line; continuity, uniform continuity, differentiability, integration, sequences and series of functions. (Fall) (Evenings)

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. (Spring) (Evenings)

MATH 3146. Introduction to Complex Analysis. (3) Prerequisite: MATH 2241 with a grade of C or better. Analytic functions, complex integration, calculus of residues, conformal mapping. (Spring) (Alternate years)

MATH 3163. Introduction to Modern Algebra. (3) (W) Prerequisite: MATH 1242 and MATH 2164 with a grade of C or better or consent of the Department. Examples and elementary properties of basic algebraic structures, especially groups. The course emphasizes the writing of proofs of elementary theorems. (Fall, Spring) (Evenings)

MATH 3166. Combinatorics. (3) Prerequisites: MATH 2164. Combinatorial modeling, generating functions, recurrence relations, inclusion-exclusion principle and problems from recreational mathematics. (Spring) (Alternate years)

MATH 3171. Applied Mathematics. (3) Prerequisites: MATH 2241 and 2171 with grades of C or better. Separation of variables techniques for the classical partial differential equations of mathematical physics; Fourier series; Sturm-Liouville theory. (Fall) (Evenings)

MATH 3176. Numerical Analysis. (3) Prerequisites: ITCS 1214, MATH 2241 and 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 will be programmed for computer solution. (Spring) (Alternate years)

MATH 3181. Fundamental Concepts of Geometry. (3) Prerequisite: MATH 2164 with a grade of C or better. Foundations of geometry, transformations, comparison of Euclidean and non-Euclidean geometries. (Fall, Spring) (Evenings)

MATH 3551. Mathematics Cooperative Education or 49ership Experience. (0) Prerequisites: Sophomore standing, a 3.0 GPA in MATH/STAT/OPRS courses and consent of the Department of Mathematics. 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. After completing MATH 3551, the co-op student must take MATH 3652. MATH 3551 may be repeated with consent of the Department. Evaluation is Satisfactory/Unsatisfactory. (On demand)

MATH 3652. Mathematics Cooperative Education Seminar. (1) Prerequisite: MATH 3551. The student will give an exposition of his/her work experience in MATH 3551. An exposition of underlying theoretical concepts and related ideas may also be required. (On demand)

MATH 3688. Mathematics Awareness Seminar. (0) Prerequisite: sophomore standing. Visiting speakers, discussion of internships, cooperative education and job opportunities; selected topics in mathematics. (Fall)

MATH 3689. Mathematics Project Seminar. (1) (O) Prerequisite: senior standing. Oral presentation by the student on an area of mathematics or a mathematical problem. (Fall, Spring)

MATH 3691. Seminar. (1-6) Prerequisite: Consent of the Department. Readings, study and discussion designed to develop the student's ability to study independently and to present results properly. (On demand)

MATH 3790. Junior Honors Seminar. (3) Prerequisite: consent of the Department. May be repeated once for additional credit with approval of the Department. (On demand)

MATH 3791. Senior Honors Tutorial. (3) Prerequisite: Consent of the Department. Individual tutorials in which the student will pursue independent study and research in any area of mathematics under the direction of one or more faculty members. The project of the student will be planned to culminate in a research paper of original or expository nature. May be repeated for additional credit with the approval of the Department. (On demand)

MATH 4000. Topics in Foundations or History of Mathematics. (2-3) Prerequisite: Consent of the Department. Topics in the foundations or the history of mathematics selected to supplement regular course offerings in this area of

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mathematics. May be repeated for credit with approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. (*On demand*)

MATH 4040. Topics in Analysis. (2-3) Prerequisite: consent of the Department. Topics in analysis selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. (*On demand*)

MATH 4060. Topics in Algebra. (2-3) Prerequisite: Consent of the Department. Topics in algebra selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. (*On demand*)

MATH 4080. Topics in Geometry and Topology. (3) Prerequisite: Consent of the Department. Topics in geometry or topology selected to supplement regular course offerings in this area of mathematics. May be repeated for credit with approval of the Department. Credit for M.A. degree in Mathematics requires approval of the Department. (*On demand*)

MATH 4109. History of Mathematical Thought. (3) Prerequisite: MATH 1241 or consent of the Department. A study of the development of mathematics in its historical setting from the earliest beginnings to modern times. Not approved for the M.A. in mathematics degree. (*Fall*) (*Evenings*)

MATH 4161. Number Theory. (3) Prerequisite: MATH 3163 with a grade of C or better or consent of the 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. (*Spring*) (*Alternate years*)

MATH 4163. Modern Algebra. (3) Prerequisite: MATH 3163 or consent of the Department. Groups, rings, integral domains, and fields. (*Fall*) (*Alternate years*)

MATH 4164. Abstract Linear Algebra. (3) Prerequisite: MATH 2164 and 3163 or consent of the Department. Vector spaces over arbitrary fields, linear transformations, canonical forms, and multilinear algebra. (*Spring*) (*Alternate years*)

MATH 4181. Introduction to Topology. (3) Prerequisite: MATH 2164 with a grade of C or better. Topics from set theory and point set topology such as cardinality, order, topological spaces, metric spaces, separation axioms, compactness and connectedness. (*Fall*) (*Alternate years*)

MATH 4691. Seminar. (1-6) Prerequisite: Consent of the Department. Individual or group investigation and exposition of selected topics in mathematics. (*On demand*)

MATH 4692. Seminar. (1-6) Prerequisite: Consent of the Department. A continuation of MATH 4691. (*On demand*)

METEOROLOGY (METR)

METR 3140. Introduction to Meteorology & Climatology. (3) Prerequisite: ESCI 1101-1101L or consent 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. (*Fall*)

METR 3220. Physical Meteorology. (3) Prerequisite: METR 3140. Properties of aerosols and clouds, cloud nucleation and precipitation processes, and atmospheric electricity. Introduction to radar meteorology. Three hours of lecture per week. (*Spring*)

METR 3240. Boundary-Layer Meteorology. (4) Prerequisites: METR 3140, MATH 1241, or consent of instructor. Examines the flows of energy, water, and gases within the planetary boundary layer and the exchange of energy and mass at the earth's surface. Theories of interactions within the boundary-layer. Three hours of lecture and one three-hour lab per week. (*Spring*)

METR 3245. Synoptic Meteorology. (4) Prerequisite: METR, 3140, MATH 1241, or consent of instructor. An extension of ESCI 3250 to include atmospheric modeling, analysis of air mass structure, synoptic analysis with quantitative forecasting techniques, severe storm characteristics, wind shear, boundary-layer meteorology, and techniques for differentiating climatic regime traits and analysis of their variation through time. Three hours of lecture and one three-hour lab per week. (*Fall*)

METR 3250. Dynamic Meteorology. (3) Prerequisites: METR 3140, MATH 1241, or consent of instructor. In-depth examination of atmospheric dynamics, including horizontal flow in the atmosphere, characteristics of fluid flow applied to the atmosphere, and general circulation models. Three hours of lecture, three hours of lab, per week. (*Spring*)

METR 3252. Weather Analysis Laboratory. (1) Prerequisite or co-requisite: METR 3245 and consent of instructor. Weather observation, meteorologic data collection and analysis, and techniques of weather forecasting. May be repeated for credit. (*On demand*)

METR 4000. Selected Topics in Meteorology. (1-4) Prerequisites: METR 3140 or permission of the instructor. In-depth treatment of specific topics selected from meteorology. May be repeated for credit as topics vary. (*On demand*)

METR 4150. Applied Climatology. (3) Prerequisite: METR 3250 or consent of instructor. Methods of acquiring and analyzing climatic data in various types of applied problems. Emphasis on methods to assess and reduce the impact of weather and climate upon human activities. (*Spring*)

METR 4245. Advanced Synoptic Meteorology. (3) Prerequisites: METR 3245, METR 3250. An extension of METR 3245 sufficient to develop an integrated view of dynamic and synoptic meteorology. Included are a survey of conceptual models and analysis techniques for mesoscale atmospheric features, cumulus convection, and tropical storms. Three hours of lecture per week. (*Spring, On demand*)

METR 4250. Advanced Dynamic Meteorology. (3)
Prerequisites: METR 3245, METR 3250, or consent of instructor. In-depth examination of atmospheric dynamics, focusing on the structure and evolution of synoptic scale dynamical and convective weather systems, and atmospheric modeling. Three hours of lecture per week. *(Fall, On demand)*

METR 4400. Internship in Meteorology. (3-6)
Prerequisite: Consent of the 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. *(On demand)*

METR 4800. Individual Study in Meteorology. (1-4)
Prerequisite: Permission from the Department and credit hours established in advance. Tutorial study or special research problems. The student must request permission for independent study from an individual faculty member. May be repeated for credit as topics vary. *(On demand)*

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. *(Fall)*

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. *(Spring)*

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. *(Fall, Spring, Summer)*

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 4430. Student Teaching/Seminar: 6-9 Middle Grades Education. (15) (O) Prerequisite: Completion of all coursework and approval of an Application for Student Teaching. Planned sequence of experiences in the student's two areas of content specialization conducted in an approved middle school setting under the supervision and coordination of a University supervisor and a cooperating teacher. The

student 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 and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

MLDG 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 (gr. 6-9). *(On demand)*

MIDDLE, SECONDARY, AND K-12 EDUCATION (MSDK)

MSDK 3150. Research and Analysis of Teaching Middle and Secondary School Learners. (3) 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. *(Fall, Spring)*

MSDK 3151. Instructional Design and the Use of Technology with Middle and Secondary School Learners. (3) Prerequisite: EDUC 2100, SECD 3140 or MDLG 3130, SPED 2100, and admission to Teacher Education. Setting goals and objectives for instruction; planning activities and writing assessments based on objectives; use of computer software for the creation of units, lesson plans, and teacher-made tests. *(Fall, Spring)*

MSDK 3160. Learning and Development: Birth through Adolescence. (3) Prerequisites: 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. *(Fall)*

MSDK 3161. K-12 Curriculum Studies. (3) Prerequisites: 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. *(Spring)*

MSDK 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 15 hours of field experiences. *(Fall, Spring)*

MSDK 4253. Teaching Social Studies to Middle and Secondary School Learners. (3) 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

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school students. Includes 15 hours of field experiences. (*Fall, Spring*)

MDSK 4469. Student Teaching/Seminar: K-12 Foreign Language. (15) Prerequisite: Approval of an Application for Student Teaching. 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 field in two different grade level settings, initially at the elementary level and subsequently at either the middle or secondary school level. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. (*Fall, Spring*)

MECHANICAL ENGINEERING (MEGR)

MEGR 2141. Engineering Mechanics I. (3) Prerequisites: PHYS 2101 and MATH 1242 with a grade of C or better. This course introduces the principles of particle and rigid body mechanics with engineering applications. Force systems and resultants. The equilibrium of particles and rigid bodies. Friction. Properties of areas and volumes.

MEGR 2144. Introduction to Solid Mechanics. (3) Prerequisites: MEGR 2141 with a grade of C or better and MATH 2241. 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 Laboratory I. (2) Prerequisites: ENGR1201, ENGR1202, PHYS 2102, MEGR 2141 with a grade of C or better, and MATH 2241. Co-requisite: MEGR 2180 Manufacturing Systems. Introduction to design as well as the fundamentals of manufacturing, including computer-aided manufacturing (CAM). Emphasis will be placed on design visualization, functional analysis, and design prototyping. Student designs will be manufactured to verify design concepts.

MEGR 2180. Manufacturing Systems. (3) Prerequisites: ENGR 1202, PHYS 2102L, MEGR 2141 with a grade of C or better, and MATH 2241. Co-requisite: MEGR 2156, Design Projects Laboratory I. The course will impart 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 will also be introduced, including the time value of money, economic analysis, and cost estimating.

MEGR 2299. Motorsports Engineering Clinic I. (1) Prerequisite: admission to Motorsports concentration; 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 and MATH 2241. 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. (*Fall, Spring*)

MEGR 3090. Special Topics in Mechanical Engineering. (1-4) Prerequisite: consent of the Department. The course will build upon and synthesize 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. (*Technical Elective*)

MEGR 3111. Thermodynamics I. (3) 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 a grade of C or better. General thermodynamic relations; equations of state and generalized charts. Combustion, dissociation, and chemical equilibrium. Introduction to power cycles.

MEGR 3114. Fluid Mechanics. (3) Prerequisite: MEGR 3121 with a grade of C or better. 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, both with a grade of C or better. 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, both with a grade of C or better. 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 3121 and MATH 2171, both with a grade of C or better. Modeling of mechanical dynamic systems. Vibration of lumped mass systems. Analysis and design of mechanical systems using time domain and frequency domain methods.

MEGR 3131. Introduction to Electronic Materials. (3) Prerequisite: PHYS 2102, with a grade of C or better. 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. (*Technical Elective*)

MEGR 3152. Mechanics and Materials Laboratory. (2) (W) Prerequisites: MEGR 2144, MEGR 3161 and MEGR 3171L, all with a grade of C or better. Co-requisite: MEGR 3122. 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, and MEGR 2156 all with a grade of C or better. 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 and MATH 2171, and MEGR 2144 with a grade of C or better. 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 a grade of C or better. 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. *(Technical Elective)*

MEGR 3171. Introduction to Measurements and Instrumentation. (2) Prerequisite: ECGR 2161, with a grade of C or better. Co-requisite: MEGR 3171L. Statistical analysis of experimental data, curve fitting. Operational amplifiers and signal conditioning techniques for remote monitoring. Computer data acquisition, interfaces and techniques, RS-232 and GPIB interface buses. 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 a grade of C or better. Co-requisite: 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 a grade of C or better. 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. *(Technical Elective)*

MEGR 3211. Road Vehicle Dynamics. (3) Prerequisites: MEGR 3121 and MEGR 3122, both with a C or better. An introduction to road vehicle Dynamics. Acceleration and

braking performance, road loads, steady-state cornering, suspension, steering system and tire behavior. *(Spring)(Technical Elective)*.

MEGR 3212. Heat Convection and Compact Heat Exchanger Design. (3) Prerequisites: MEGR 3114 and MEGR 3116, both with a grade of C or better. Natural, forced internal and external heat convection, heat convection in phase change (boiling and condensation) and design of compact heat exchangers *(Technical Elective)*

MEGR 3214. Refrigeration and Air/Conditioning. (3) Prerequisites: MEGR 3112 and 3116, both with a grade of C or better. Thermodynamics and heat transfer applied to analysis, design of cooling/heating systems. *(Technical Elective)*

MEGR 3216. Thermal/Fluid Design. (3) Prerequisites: MEGR 3114 and 3116, both with a grade of C or better. 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) Prerequisite: MEGR 3122 and MEGR 2144, both with a grade of C or better. 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 a grade of C or better. Synthesis of machines and mechanical systems. Analysis, creative design and selection of machines and machine elements. *(Technical Elective)*

MEGR 3225. Introduction to Finite Element Analysis. (3) Prerequisites: MEGR 2144 and MEGR 3122, both with a grade of C or better. The basis 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. *(Technical Elective)*

MEGR 3251. Thermal/Fluids Laboratory. (2) (W) Prerequisites: MEGR 3111, MEGR 3114, and MEGR 3171L, all with a grade of C or better. 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) Prerequisite: MEGR 3156 with a grade of C or better. Co-requisite: MEGR 3152, MEGR 3251 and senior standing in mechanical engineering. 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.

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MEGR 3256. Senior Design II. (2) (O) Prerequisite: MEGR 3255 with a grade of C or better. A continuation of MEGR 3255 including project execution leading to an oral presentation and final written report.

MEGR 3281. Numerical Control of Manufacturing Processes. (3) Prerequisite: MEGR 2180. 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. *(Technical Elective)*

MEGR 3282. Statistical Process Control and Metrology. (3) Prerequisite: MEGR 3171. 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. *(Technical Elective)*

MEGR 3299. Professional Development. (1) An examination of various aspects of engineering as a profession. The course will be graded on a Pass/No Credit basis.

MEGR 3355. Motorsports Engineering Clinic II. (2) Prerequisite: admission to Motorsports concentration, senior standing in mechanical engineering, MEGR 2299 and MEGR 3156, both with a grade of C or better. Co-requisite: 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 Engineering Clinic III. (2) (O) Prerequisite: admission to Motorsports concentration and MEGR 3355 with a grade of C or better. 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 representative.

MEGR 3695. Mechanical Engineering Cooperative Education Seminar. (1) Required of Co-op students during semesters immediately following each work assignment for presentation of engineering reports on work done the prior semester.

MEGR 3890. Individualized Study. (1-3) Prerequisite: consent of the 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. *(Technical Elective)*

MEGR 3990. Undergraduate Research. (1-4) Prerequisite: Consent of the Department. 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. *(Technical Elective)*

MEGR 4112. Intermediate Fluid Mechanics and Vehicle Aerodynamics. (3) Prerequisites: MEGR 3111 and 3114,

both with a grade of C or better. 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. *(Technical Elective)*

MEGR 4113. Energy Conversion I. (3) Prerequisites: MEGR 3112 and MEGR 3114, both with a grade of C or better. Application of principles of thermodynamics, fluid flow and heat transfer to internal combustion engines, compressors, turbines, heat exchanges, refrigeration, and cryogenics. *(Technical Elective)*

MEGR 4127. Introduction to Robotics. (3) Prerequisites: ECGR 3101, or senior standing in ME or EE Departments. 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. (Dual-listed with ECGR 4161) *(Technical Elective)*

MEGR 4131. Solid State Transformations. (3) Prerequisite: MEGR 3161 with a grade of C or better. 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. *(Technical Elective)*

MEGR 4143. Discrete Mechanical Vibrating Systems. (3) Prerequisites: MEGR 3122 with a grade of C or better. 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. *(Technical Elective)*

MEGR 4144. Intermediate Dynamics. (3) Prerequisites: MEGR 3121 and MATH 2171, both with a grade of C or better. Further studies in dynamics of particles and rigid bodies, with engineering applications. Introduction to Lagrange's equations of motion. Multi-degree-of-freedom vibrations. *(Technical Elective)*

MEGR 4162. Materials Production and Process. (3) Prerequisites: MEGR 3161, with a grade of C or better, and consent of instructor. Applications of thermodynamics and chemistry to extractive process metallurgy. Fundamental principles of materials forming operations. Casting, mechanical working and joining methods. *(Technical Elective)*

MEGR 4165. Introduction to Nondestructive Evaluation Methods. (3) Prerequisite: MEGR 3161, with a grade of C or better. Nondestructive evaluation principles and techniques, including liquid penetrate, magnetic particle, acoustic emission, ultrasound, radiography and eddy currents. *(Technical Elective)*

MANAGEMENT (MGMT)

MGMT 1140. Introduction to Business. (3) Prerequisite: less than 45 hours earned. Fundamentals of business including marketing, management, production, accounting,

finance, economics, information systems and other business areas. A general elective course that does not satisfy a requirement for any concentration or major in The Belk College of Business. *(On demand)*

MGMT 3000. Topics in Management. (3) Prerequisite: junior standing. Topics from the area of Management and Administration. The course may be repeated for credit. *(On demand)*

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. *(Fall, Spring, Summer) (Evenings)*

MGMT 3160. Business Communications. (3) (W) (O) Prerequisite: INFO 2130, 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. *(Fall, Spring, Summer) (Evenings)*

MGMT 3241. Human Resource Management. (3) Prerequisite: MGMT 3140 with a C or better. The study of effectively selecting, utilizing, assessing and developing managers as well as the role of the Human Resource Department in administering human resources in a changing and demanding environment. Experience in developing and utilizing behavioral science research methods to assess effectiveness. *(Fall, Spring) (Evenings)*

MGMT 3242. Compensation Administration. (3) Prerequisites: MGMT 3140 with a C or better and MGMT 3241. Approaches to the design and management of compensation systems. Topics include the objectives of pay systems, policy decisions that provide the foundation for different pay systems, and the tools and techniques that link policies and objectives. *(Fall)*

MGMT 3243. Employment Law. (3) Crosslisted as ECON 3107. Prerequisite: MGMT 3140 with a C or better. 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. *(Fall) (Evenings)*

MGMT 3244. Advanced Human Resource Management. (3) Prerequisite: MGMT 3140 with a C or better. Management Majors who have elected the Human Resource Management Concentration, MGMT 3241. Advanced topics in human resource management including strategic human resource planning, job analysis, human resource information systems, training, career development, and international human resource management. Case studies, projects and presentations are used to help students apply concepts and theories to current human resource issues. *(Spring)*

MGMT 3245. Human Resource Management Systems. (3) Prerequisites: MGMT 3140 with a C or better, MGMT 3241 and INFO 3130. An examination of the concepts,

processes and technologies required for successful management of the human resource function within an organization. Emphasis will be on the acquisition and implementation of human resource management systems (HRMS). Topics covered include HRMS development/acquisitions, applications (including development and use of Intranets), and evaluation of HRMS systems as strategic tools for organizations. Students will gain practical experience in HRMS applications. *(On demand)*

MGMT 3246. Management Perspectives. (3) Prerequisites: MGMT 3140 with a C or better. Study of ethics, international business, and business communication in three integrated modules. Case studies, projects, and presentations are used to help students understand and apply concepts and theories to current business issues. *(On demand)*

MGMT 3247. Managerial Leadership. (3) Prerequisite: MGMT 3140 with a C or better. 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. *(Fall, Spring)*

MGMT 3260. Managerial Communication. (3) Prerequisites: MGMT 3140 with a C or better and MGMT 3160. An examination of the roles of communication networks and strategies in managerial decision making. Emphasis on the role of the communication skills in managing change, organizational conflict, and corporate cultures. Cases will be used to analyze and address specific management problems.

MGMT 3273. New Venture Creation. (3) Prerequisites: Management majors who have elected the Entrepreneurship Concentration. OPER 3100, MKTG 3110, FINN 3120 and MGMT 3140 with a C or better. Consideration of opportunities and obstacles of starting and operating a new business venture. Emphasis will be on integrating all managerial requirements (financial, marketing, operation, legal, logistics, accounting and behavioral) of a new venture. Study of opportunities and assistance provided by franchises, federal, state and local agencies. Practice in solving problems gained through case analysis. *(Fall)*

MGMT 3274. International Business Processes and Problems. (3) Prerequisite: MGMT 3140 with a C or better. 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. *(Fall, Spring)*

MGMT 3275. International Management. (3) Prerequisites: MGMT 3140 with a C or better, MGMT 3274 and senior standing. Preparation for effective management in a world characterized by intense international competition. Case studies, projects, and presentations assist students to apply concepts and theories. *(Fall, Spring)*

MGMT 3277. Innovation, Creativity, and Intellectual Property. (3) Prerequisites: Management majors who have elected the Entrepreneurship Concentration. Review of the processes by which continuous and discontinuous innovations are developed into intellectual property and then

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utilized as the basis for intellectual property commercialization. Cognitive aspects of innovation and creativity are covered as well as issues with patents, copyrights, trademarks, and intellectual property protection. The course presents a commercialization model by which innovations are developed into commercial products. *(Fall)*.

MGMT 3280. Business Policy. (3) Prerequisites: Senior standing and completion of ECON 3125, OPER 3100, MKTG 3110, FINN 3120, BLAW 3150, MGMT 3140 with a C or better and MGMT 3160. (Accounting majors are required to take OPER 3100, MKTG 3110, FINN 3120, MGMT 3140, BLAW 3150, and either MGMT 3160 or COMM 1101.) Concerns the role of top management of the firm in integrating internal functions and environmental forces. Emphasis on defining economic, technological, ethical, political and social factors affecting the firm and their consideration in setting goals and operating policies. *(Fall, Spring, Summer) (Evenings)*

MGMT 3282. Managerial Ethics. (3) Prerequisites: MKTG 3110, MGMT 3140 with a C or better and BLAW 3150. 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 3283. New Venture Experience. (3) Prerequisites: MGMT 3140 with a C or better and MGMT 3273. Designed for prospective entrepreneurs pursuing the concentration in Entrepreneurship; others may be admitted on a space available basis. During the course, each student will work closely with either the start-up of a new venture or a local entrepreneur with an existing business to complete a plan designed to assist the entrepreneur in some phase of his/her firm. *(Spring)*

MGMT 3285. New Venture Financing and Risk Assessment. (3) Prerequisites: Management majors who have elected the Entrepreneurship Concentration, MGMT 3273. Review of the processes by which private placement funds are raised for the initiation of an entrepreneurial venture. The course covers the development of private financing packaging, sources of new venture financing, presentation skills, the development of cash-flow and revenue streams in early stage companies, capital budget requirements, and proforma financial statements. Guest speakers will include venture capitalists, venture angels, and commercial loan officers. A model of new venture risk will be developed and explored. Simulations and cases will be used to simulate practical experience *(Spring)*

MGMT 3500. Cooperative Education or 49ership Experience. (0) Enrollment in this course is required for the Department's cooperative education and 49ership students during each semester they are working in a position. This course is restricted to majors in the Department of Management. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. *(Fall, Spring, Summer)*

MGMT 3800. Directed Study. (1-6) Prerequisites: Consent of the 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. *(On demand)*

MARKETING (MKTG)

MKTG 3000. Topics in Marketing. (3) Prerequisites: MKTG 3110 with a C or better, or permission of the Department. Topics from the area of marketing. This course may be repeated for credit as topics vary. *(On demand)*

MKTG 3110. Marketing Concepts. (3) Prerequisites for College of Business majors: ACCT 2121 and 2122 with a C or better, ECON 1201 and 1202 with a C or better, INFO 2130 or College Micro Computer Proficiency Test with a C or better, 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 3210. Marketing Research and Analysis. (3) Prerequisites: MKTG 3110 with a C or better, STAT 1220. An applications course that covers the entire research process including problem identification, secondary and primary data collection, scaling techniques, questionnaire design, reliability and validity, experimental design, sampling, data analysis, and data communication. *(Fall, Spring)*

MKTG 3211. Advertising and Promotions Management. (3) Prerequisites: MKTG 3110 with a C or better. 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. *(Fall, Spring)*

MKTG 3212. Retailing Management. (3) Prerequisite: MKTG 3110 with a C or better. Presents retailing as a part of the marketing distribution phase of a total interactive marketing system. Key concepts covered include consumer and market analysis, store location, store layout, merchandising, pricing and promotional issues and problems. Also considers legal and environmental implications. Emphasis on application of class concepts through case analysis and class discussion. *(Fall, Spring)*

MKTG 3213. Professional Selling and Sales Management. (3) Prerequisite: MKTG 3110 with a C or better. An overview of skills and knowledge involved in individual selling and management of sales programs. Emphasis on sales and sales management theories and their applications. *(Fall, Spring)*

MKTG 3214. Internet Marketing. (3) Prerequisites: MKTG 3110 with a C or better, INFO 2130 or College Micro Computer Proficiency Test with a C or better. 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. *(Fall)*

MKTG 3215. Global Marketing Management. (3) Prerequisites: MKTG 3110 with a C or better. A course that assesses global market opportunities, develops global market strategies, and implements global market plans. Major topics covered include examining cultural, social, legal, political, financial, and geographical environments. The marketing mix elements are studied in the global environment. *(Fall, Spring)*

MKTG 3216. Consumer Behavior. (3) Prerequisite: MKTG 3110 with a C or better. 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. *(Fall, Spring)*

MKTG 3219. Marketing Strategy. (3) Prerequisites: MKTG 3110 with a C or better, 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. *(Fall, Spring)*

MKTG 3220. Sports Marketing. (3) Prerequisite: MKTG 3110 with a grade of C or better. The course will explore the strategies necessary for success in marketing sports events, products and services. The course will build knowledge, skills, and practical understanding of the nature, contexts and dynamics of sports marketing and critically explore the product, pricing, promotion, and distribution – the strategies – available to sports and sports-related businesses. *(Fall)*

MKTG 3400. Marketing Internship. (3) Prerequisites: Junior and senior marketing majors in good standing, with the completion of MKTG 3110 with a C or better and two Marketing electives. Requires consent of the Department. Provides a meaningful work experience in a field 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. Student should consult the Department Chair well in advance of registration to discuss availability of positions. Proposal forms must be completed and approved prior to registration. Graded on Pass/No Credit basis. Cannot be repeated for credit or taken for credit at the same time or following any other internship for credit. *(Fall, Spring, Summer)*

MKTG 3500. Cooperative Education and 49ership Experience. (0) Enrollment in this course is required for the department's cooperative education and 49ership students during each semester they are working in a position. This course is restricted to majors in the Department of Marketing. Acceptance into the Experiential Learning Program by the University Career Center is required. Participating students pay a registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact

the University Career Center. *(Fall, Spring, Summer)*

MKTG 3800. Directed Study. (1-3) Prerequisites: Consent of the 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. *(On demand)*

MILITARY SCIENCE (MSCI)

MSCI 1101. Introduction to ROTC. (1) Pre-professional co-requisite: MSCI 1101L. Introduction to ROTC and the U.S. Army including the rationale of the national defense structure and the mission and the role of the Army. Participation in the physical fitness program is optional. *(Fall, Spring)*

MSCI 1101L. Introduction to ROTC. (0) Leadership lab. Practical application of the material learned in the co-requisite course. *(Fall, Spring)*

MSCI 1102. Introduction to Leadership. (1) Pre-professional co-requisite: MSCI 1102L. Learn and apply the principles of self-discipline and self-confidence in activities such as basic drill, physical fitness, rappelling, leadership reaction course, first aid, making presentations, and marksmanship. Participation in the physical fitness program is optional. *(Spring, Fall)*

MSCI 1102L. Introduction to Leadership. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Spring, Fall)*

MSCI 2101. Individual and Team Development. (1) Pre-professional co-requisite: MSCI 2101L. Learn the fundamental of ROTC's Leadership Development Program (LDP). Ethics based training introduces students to military oral presentations, effective writing, and event planning. Map-reading techniques are also introduced. Participation in the physical fitness program is optional. *(Fall, Spring)*

MSCI 2101L. Individual and Team Leadership Development. (0) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Fall, Spring)*

MSCI 2102. Individual and Team Military Tactics. (1) Pre-professional co-requisite: MSCI 2102L. Introduction to small-unit tactics. Students will conduct radio communications, do risk-assessments and study movement techniques while working with more experienced MSCI 3102 students. Participation in the physical fitness program is optional. *(Spring, Fall)*

MSCI 2102L. Individual and Team Military Tactics. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Spring, Fall)*

MSCI 3101. Leading Small Organizations I. (3) Pre-professional co-requisite: MSCI 3102L. Study in small group leadership, emphasizing public speaking. Each student is given at least five evaluated public speaking opportunities. Studies include staff functions, communications, advanced

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land navigation, marksmanship, and the advanced tactics. Participation in three one-hour sessions of physical fitness is mandatory. One weekend of exercise is required and three more are optional. *(Fall)*

MSCI 3101L. Leading Small Organizations I. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Fall)*

MSCI 3102. Leading Small Organizations II. (3) Pre-professional co-requisite: MSCI 2102L. Study in small group leadership, emphasizing written communication. Each student will be given at least five evaluated writing assignments. Studies focus on advanced tactics and leadership training. The course prepares students for Advanced Summer Camp where they compete against students from across the country in leadership ability. Ethical decision-making, and exercises in planning, organizing and executing tactical maneuvers are also areas of study. Participation in three one-hour sessions of physical fitness is mandatory each week. One weekend exercise is required and three others are optional. *(Spring)*

MSCI 3102L. Leading Small Organizations II. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Spring)*

MSCI 4101. Ethics and Values of an Army Professional. (3) Pre-professional co-requisite: MSCI 4101L. All training incorporates an emphasis on ethics and values. Plan, conduct, and evaluate activities of the ROTC cadet organization. Study the Army training management, administrative, judicial, and logistical systems with an emphasis on ethical standards, ethical decision-making process, and the professional and moral obligations of military officers. Participation in three one-hour sessions of physical fitness is mandatory each week. Participation in one weekend exercise is required, and three more are optional. *(Fall)*

MSCI 4101L. Ethics and Values of an Army Professional. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Fall)*

MSCI 4102. Transition to Lieutenant. (3) Pre-Professional co-requisite: Emphasis is on refining students into well-rounded leaders. Topics include: the role of an officer as a trainer, resolves ethical dilemmas, and refine counseling and motivating techniques. Military Law is a primary focus of the course. Participation in three one-hour sessions of physical fitness is mandatory each week. Participation in one weekend exercise is required, and three more are optional. *(Spring)*

MSCI 4102L. Transition to Lieutenant. (1) Leadership Lab. Practical application of the material learned in the co-requisite course. *(Spring)*

MUSIC (MUED)

MUED 1150. Introduction to Band and Orchestra Instruments. (2) Designed for non-instrumental music education majors, the course includes the study of the practical range, embouchure, transposition and applications of each musical instrument. Includes a comparative analysis of available method books, and a hands-on approach with a

woodwind, brass, string and percussion instrument to develop competencies for teaching at any grade level. Three contact hours. *(Fall, Spring)*

MUED 3197 Marching Band Techniques and Materials. (2) Designed for music majors interested in teaching marching band, the course includes discussion of 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. Field-experience observations of school groups are required. No prerequisites. Three contact hours. *(Fall)*

MUED 4132. Guitar Pedagogy and Materials. (3) An introduction to the teaching of the principles of classical guitar playing, including the performance practices and the music of major composers from the 16th century to the present. Three contact hours. *(On demand)*

MUED 4133. Wind Pedagogy and Materials. (3) A methodology course dealing with the techniques and materials necessary for offering private instruction on woodwind and brass instruments. *(Spring)*

MUED 4134. String Pedagogy and Materials. (3) A methodology course outlining the teaching techniques, materials, and related literature necessary for offering applied instruction on string instruments. *(Spring)*

MUED 4135. Percussion Pedagogy and Materials. (3) A methodology course dealing with the techniques and materials necessary for offering private instruction on percussion instruments. *(Fall)*

MUED 4136. Keyboard Pedagogy and Materials. (3) A methodology course dealing with piano performance and teaching including: technique, learning procedures/styles, performance, physiology, methods, wellness issues, and technology. *(Fall)*

MUED 4137. Vocal Pedagogy and Materials. (3) Pre-requisite: Two semesters of MUSC 1253 or permission of instructor. 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. *(Fall)*

MUED 4138. Jazz Pedagogy and Materials. (3). Prerequisite: consent of instructor. 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. Three contact hours. *(Spring)*

MUED 4140. Secondary Choral Methods. (2) Rehearsal techniques, repertoire, and administration of junior and senior high school choral groups. Includes mixed concert choirs, male and female choirs, and techniques for show/jazz choir. Field work required. Three contact hours. *(Fall)*

MUED 4141. Music Education and Learning Theory in the Elementary Classroom. (2) Prerequisite: consent of instructor. Students will study various approaches to the

music education of children, including those of Orff, Dalcroze, Gordon, and Kodaly. Field work required. Two contact hours. *(Spring)*

MUED 4145. Music Arranging. (2) Pre-requisite: departmental permission. Techniques used to arrange music for instrumental and vocal ensembles from existing sources. Three contact hours. *(Fall)*

MUED 4151. Computer Skills for the Music Educator. (2) Prerequisite: consent of instructor. The study of contemporary MIDI and computer related technologies available to the music educator. Two contact hours. *(Fall)*

MUED 4192. Elementary Music Methods. (2) Prerequisite: consent of instructor. Methods and materials for teaching music to elementary school children. Additional attention to philosophy and portfolio development. Two contact hours. Field work required. *(Fall)*

MUED 4193. Secondary Music Methods. (2) Prerequisite: consent of instructor. Methods and materials for teaching general and non-performance-based music courses to middle school and senior high school students. Two contact hours. Field work required. *(On demand)*

MUED 4194. Elementary Instrumental Methods. (2) Prerequisite: consent of instructor. Study and analysis through individual evaluation and in-class group performance of current elementary instrumental method books and teaching strategies. Field work required. Three contact hours. *(Fall)*

MUED 4195. Secondary Instrumental Methods. (2) Prerequisite: consent of instructor. Musical, organizational, and administrative aspects of teaching junior and senior high school bands and orchestras. Field work required. Three contact hours. *(Spring)*

MUED 4467. Student Teaching/Seminar: K-12 Music. (15) Prerequisite: approved application for student teaching; senior status; completion of professional education requirements; completion of all portions of the Sophomore Screening; grades of C or better 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. *(Spring)*

MUSIC (MUSC)

MUSC 0930. Rudiments of Music. (3) Introductory skill-building course in music reading. *(Fall, Summer)*

MUSC 1110. Orchestra. (1) A performing ensemble. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 1111. Jazz Ensemble. (1) Prerequisite: audition. 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. *(Fall, Spring)*

MUSC 1112. Symphonic Wind Ensemble. (1) A performing ensemble open to advanced wind and percussion players from any major. Auditions required every semester. Performs traditional and contemporary band literature in concerts twice each semester. Occasional concert tours and performances for important regional music events. May be repeated for credit. Four contact hours. *(Fall, Spring)*

MUSC 1113. Concert Band. (1) A performing ensemble open to all students and members of the community with experience playing wind and percussion instruments. No formal audition required, only a simple hearing to determine part placement. Performs traditional and contemporary band literature in concerts twice each semester. May be repeated for credit. Two contact hours. *(Fall, Spring)*

MUSC 1114. Basketball Band. (1) Prerequisite: consent of instructor. A performing ensemble for University athletic contests and other campus events. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 1115. Guitar Ensemble. (1) Prerequisite: consent of instructor. A performing ensemble. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 1119. Special Instrumental Ensemble. (1) Prerequisite: consent of instructor. An alternative to traditional ensembles listed above for students with specialized performance interests. Enrollment restricted to music majors. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 1120. University Chorale. (1) Prerequisite: permission of the instructor and completion of MUSC 1122, MUSC 1123, or MUSC 09XX. 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 UNCC students with extensive choral experience. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 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 UNCC students. A full-year commitment is expected. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 1122. Men's Chorus (Mallard Creek Chorale). (1) The Mallard Creek Chorale is a popular performing ensemble for men in the glee tradition. The group performs several times each semester, including occasionally at off-campus and athletic events. The ensemble performs folk, spirituals, Broadway, patriotic, barbershop, du-wop, and other musical styles traditional for men's choruses. Open to all male UNCC students with an interest in singing. Emphasis is placed on building vocal technique and sight-singing ability. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 1123. Women's Vocal Ensemble (Charlotteans). (1) Charlotteans is a women's ensemble open to all female UNCC students with an interest in singing. Performance literature ranges from Renaissance through contemporary. Emphasis is placed on building vocal technique and sight-singing ability. May be repeated for credit. Three contact hours. *(Fall, Spring)*

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hours. (*Fall, Spring*)

MUSC 1128. Special Vocal Ensemble. (1) Prerequisite: 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. (*Fall, Spring*)

MUSC 1133. The History of Rock Music. (3) A chronological approach to the evolution of rock music, its varied styles and artists. (*Fall, Summer*)

MUSC 1134. The Evolution of Jazz. (3) A chronological approach to the history of jazz, its main styles and artists. (*Spring*)

MUSC 1140. 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. (*Fall, Spring*)

MUSC 1221. Classroom Instruments. (1) A study of various elementary classroom instruments, including percussion, mallet (Orff) instruments, autoharp and guitar. Students will develop/review basic music-reading skills applicable to the playing and teaching of these instruments. One contact hour. (*Spring*)

MUSC 1223. Woodwind Techniques, Methods, and Materials I. (1) Playing and teaching techniques and materials for flute, oboe, clarinet, bassoon, and saxophone. (*Fall*)

MUSC 1224. Woodwind Techniques, Methods and Materials II. (1) Continuation of MUSC 1223. (*Spring*)

MUSC 1225. Brass Techniques, Methods and Materials I. (1) Playing and teaching techniques and materials for trumpet, horn, trombone, euphonium, and tuba. (*Fall*)

MUSC 1226. Brass Techniques, Methods, and Materials II. (1) Continuation of MUSC 1225. (*Spring*)

MUSC 1227. String Techniques, Methods and Materials I. (1) Playing and teaching techniques and materials for violin, viola, cello, and bass. Two contact hours. (*Fall*)

MUSC 1228. String Techniques, Methods and Materials II. (1) Continuation of MUSC 1227. (*Spring*)

MUSC 1229. Percussion Techniques, Methods and Materials. (1) Playing and teaching techniques and materials for snare drum, timpani, mallet percussion, and accessory instruments. (*Fall, Spring*)

MUSC 1230. Musical Structure and Style I. (2) Prerequisite: MUSC 0930 or placement by department. Study of music fundamentals through simple tonality and 4-part writing. Three contact hours. (*Fall*)

MUSC 1231. Musical Structure and Style II. (2) Prerequisite: MUSC 1230 or placement by department. Further study of tonal relations, including secondary dominants and modulation. Three contact hours. (*Spring*)

MUSC 1233. Class Piano I. (1) Prerequisite: placement by

the department. Class instruction in piano. Three contact hours. (*Fall*)

MUSC 1234. Class Piano II. (1) Prerequisite: MUSC 1233 or placement by the department. A continuation of MUSC 1233. Three contact hours. (*Spring*)

MUSC 1237. Class Voice. (1) Prerequisite: consent of instructor and departmental permission. Class instruction in voice. Three contact hours. May be repeated for credit. (*Fall, Spring*)

MUSC 1238. Guitar Class I. (2) Prerequisite: consent of instructor. Class instruction in guitar using contemporary popular music and music from a text. Three contact hours. (*On demand*)

MUSC 1239. Guitar Class II. (2) Prerequisite: consent of instructor. Continuation of MUSC 1238. Three contact hours. (*On demand*)

MUSC 1240-1259. Applied Music. Courses consist of private instruction, a one hour lesson per week (2 credits). Minimum of one hour practice per day per credit hour. May be repeated for credit. Students must sign up for the required labs, MUSC 12XX.L01, and a large ensemble (MUSC 1110, MUSC 1112, MUSC 1113, MUSC 1120, or MUSC 1121) concurrently.

MUSC 1240. Applied Music: Euphonium. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1241. Applied Music: Trumpet. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1242. Applied Music: French Horn. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1243. Applied Music: Trombone. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1244. Applied Music: Tuba. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1245. Applied Music: Guitar. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1246. Applied Music: Harp. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1247. Applied Music: Organ. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1248. Applied Music: Piano. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1249. Applied Music: Violin. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1250. Applied Music: Viola. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1251. Applied Music: Cello. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1252. Applied Music: Bass. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1253. Applied Music: Voice. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1254. Applied Music: Flute. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1255. Applied Music: Clarinet. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1256. Applied Music: Saxophone. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1257. Applied Music: Oboe. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1258. Applied Music: Bassoon. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1259. Applied Music: Percussion. (2) Prerequisite: consent of instructor. (*Fall, Spring*)

MUSC 1260. Ear Training I. (1) Prerequisite: MUSC 0960 or placement by the department. The development of aural skills through sight singing, melodic, rhythmic and harmonic dictation. Three contact hours. (*Fall*)

MUSC 1261. Ear Training II. (1) Prerequisite: MUSC 1260 or placement by the department. Continuation of Ear Training I. Three contact hours. (*Spring*)

MUSC 2137. Phonetics and Articulation for Singers I. (2) Prerequisite: consent of instructor. Pronunciation and articulation in vocal music in English and Italian. Three contact hours. (*Fall*)

MUSC 2138. Phonetics and Articulation for Singers II. (2) Prerequisites: MUSC 2137 and consent of instructor. Pronunciation and articulation in vocal music in German and French. Three contact hours. (*Spring*)

MUSC 2191. Incorporating Music Into the Elementary Classroom. (3) Students will develop basic music skills that will allow them to choose, prepare, and teach appropriate music materials for inclusion in the classroom curricula. Non-music majors only. Three contact hours. Field work required. (*Fall*)

MUSC 2230. Musical Structure and Style III. (2) Prerequisite: MUSC 1231 or placement by the department. Further study in tonal relations, including borrowed chords, Neapolitan and augmented sixth chords. Three contact hours. (*Fall*)

MUSC 2231. Musical Structure and Style IV. (2) Prerequisite: MUSC 2230 or placement by the department. Study of late 19th and early 20th century chromaticism, including impressionism--may include a study of some formal designs. Three contact hours. (*Spring*)

MUSC 2233. Class Piano III. (1) Prerequisite: MUSC 1234 or placement by the department. Continuation of Class Piano II. Three contact hours. (*Fall*)

MUSC 2234. Class Piano IV. (1) Prerequisite: MUSC 2233 or placement by the department. Continuation of Class Piano III. Two contact hours. (*Spring*)

MUSC 2235. Jazz Improvisation I. (2) Prerequisites: MUSC 1230, MUSC 1231 and/or consent 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. (*Fall*)

MUSC 2236. Jazz Improvisation II. (2) Prerequisites: MUSC 2235 and/or consent 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. (*Spring*)

MUSC 2237. Counterpoint. (2) Prerequisite: consent of instructor. An introduction to the polyphonic techniques of 16th and 18th century music. (*Spring*)

MUSC 2260. Ear Training III. (1) Prerequisite: MUSC 1261 or placement by the department. Continuation of Ear Training II. Three contact hours. (*Fall*)

MUSC 2261. Ear Training IV. (1) Prerequisite: MUSC 2260 or placement by the department. Continuation of Ear Training III. Three contact hours. (*Spring*)

MUSC 2270. Music Notation Using Computer Software. (2) Prerequisite: Consent of instructor. A study of contemporary music notation methods using computer software. Two contact hours. (*On demand*)

MUSC 3001. Topics in Music. (1-6) Prerequisite: consent of instructor. Special topic in music. May be repeated for credit. (*On demand*)

MUSC 3134. Fundamentals of Conducting. (2) Conducting techniques for instrumental and choral ensembles. Field work required. Three contact hours. (*Fall*)

MUSC 3135. Choral Conducting. (2) Prerequisite: MUSC 3134. Developing conducting skills for interpreting choral music. Field work required. (*Spring*)

MUSC 3136. Instrumental Conducting. (2) Prerequisite: MUSC 3134. Developing conducting skills for interpreting instrumental music. Field work required. (*Spring*)

MUSC 3139. Orchestration. (3) Prerequisite: MUSC 2231. Scoring and arranging for instruments and/or voice. (*On demand*)

MUSC 3150. Accompanying. (1) Prerequisite: consent of instructor. Accompanying techniques for pianists. Required accompanying of solos by other student musicians. Separate sections for piano majors and music educators. One contact hour. (*Fall, Spring*)

MUSC 3160. 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 16th century to the present. Three contact hours. (*On demand*)

MUSC 3170. Music History I. (3) (W) Prerequisites: MUSC 2231 and MUSC 2261. Limited to music majors

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only. Music history and literature from Classical Antiquity through the Baroque Period. *(Fall)*

MUSC 3171. Music History II. (3) (W) (O) Prerequisite: MUSC 3170 or consent of the instructor. Limited to music majors only. Music history and literature from the Classical period to the present. *(Spring)*

MUSC 3230. Musical Structure and Style V. (3) Prerequisite: MUSC 2231 or placement by the department. Study of 20th century music, including Neoclassicism, Post-serialism, Minimalism, and Neoromanticism. *(Fall)*

MUSC 3231. Musical Structure and Style VI. (3) Prerequisite: MUSC 3230 or placement by the department. Study of larger musical structures such as symphony, concerto, contrapuntal designs, and 20th century approaches to form and analysis. *(Spring)*

MUSC 3275. MIDI Synthesis Technology. (2) Prerequisite: Consent of instructor. A study of contemporary computer-based sequencing software, MIDI keyboards, modules, controllers, and basic recording and arranging techniques. Two contact hours. *(Summer)*

MUSC 3281. Chamber Music Ensembles. (1) Prerequisite: consent of instructor. Performance by small groups of specific works. *(Fall, Spring)*

MUSC 3283. Opera Workshop. (1) Prerequisite: audition. Performance of scenes, acts, and entire operas. May be repeated for credit. Three contact hours. *(Fall, Spring)*

MUSC 3831. Composition. (2) Prerequisite: consent of instructor. Private instruction. May be repeated for credit. One contact hour. *(Spring)*

MUSC 4001. Topics in Music. (1-6) Prerequisite: consent of instructor. Special topic in music. May be repeated for credit. *(On demand)*

MUSC 4900. Senior Project. (3) Prerequisite: permission of the chairperson and successful completion of all portions of the Sophomore Screening examination. 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. *(Fall, Spring)*

NURSING (NURN)

NURN 3100. Professional Nursing Perspectives. (3) Prerequisite: Admission to RN/BSN curriculum or permission of instructor. Introduces professional nursing with emphasis on theoretical, ethical, and legal models guiding practice. *(Fall, Spring)*

NURN 4170. Information Technology: Applications in Health Care. (3) Prerequisite: Upper-division standing or permission of instructor. A study of the use of computers and information technology in health care. Emphasis is placed on development of the knowledge and competencies necessary for selective use of evaluation of informatics, computer technology and data management in health care. *(Summer, Fall)*

NURN 4251. Issues In Nursing Leadership. (3) Prerequisite: NURN 3100. Analysis of professional nursing practice in relation to current trends and issues in health care delivery systems. *(Fall, Spring)*

NURN 4400. Professional Nursing Practicum/Seminar. (6) (O) Prerequisites: NURN 3100, NURS 3113 and 3200 or permission of instructor. Clinical practicum incorporating theory-based practice in a variety of settings with clients who have multiple health care 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. *(Spring, Summer)*

NURSING (NURS)

NURS 2100. General Nutrition. (2) Prerequisite: CHEM 1204 or 1252. Corequisite: BIOL 1273. 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. *(Fall, Spring)*

NURS 2200. Human Growth and Development. (3) Pre- or corequisites: BIOL 1273 and 1273L. 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. Open to Pre-nursing majors, sophomore standing. *(Fall, Spring)*

NURS 2201. Communication in Caring Relationships. (2) Prerequisites: ENGL 1101, ENGL 1102, PSYC 1101, and SOCY 1101 or ANTH 1101. Introduction to essential communication competencies within the context of helping relationships. Emphasis is on communication processes, cultural competence, and skills in a therapeutic relationship. Open to Pre-nursing majors, sophomore standing. *(Fall, Spring)*

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. *(Fall, Spring)*

NURS 3105. Concepts of Professional Nursing. (2) Prerequisite: Admission to the Nursing Major. Corequisite: NURS 3106 (Skills Set I) and NURS 3108 (Health Assessment.) Concepts and standards fundamental to professional nursing practice. Explores the unique role of nursing in the healthcare system. *(Fall, Spring)*

NURS 3106. Skill Set I – Basic. (1) Prerequisite: Admission to the Nursing Major. Co-requisite: NURS 3105 (Concepts of Professional Nursing.) Introduction of skills and psychomotor activities for the basic care of simulated clients. Three hours of skills lab practice per week in a learning module format. *(Fall, Spring)*

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. *(Fall, Spring)*

NURS 3108. Health Assessment. (3) Prerequisite: Admission to Nursing Major. Pre or co-requisites: NURS 3105, NURS 3106, 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. *(Fall, Spring)*

NURS 3113. Health Assessment for RNs. (3) Prerequisites: BIOL 1274, NURS 1100, or permission of instructor, and admission to the RN-BSN Curriculum. Competencies necessary for holistic health assessment across the lifespan. Evaluation of human function using interview, nursing observation, and physical examination data within a framework for clinical decision-making. *(Fall, Spring)*

NURS 3115. Health and the Aging Process. (3)—Crosslisted as GRNT 3100. Examination of the physiological processes of aging as a normal life experience. Study of psychological, nutritional and general health issues designed to facilitate high-level wellness. *(Fall)*

NURS 3120. Introduction to Community Health Nursing. (2) Prerequisite: Admission to the Nursing Major. Co-requisite: NURS 3420. Introduction to community health theory focusing on concepts of health promotion, human diversity, community organizations, and influences of the environment and the health care system. Includes nurse's role in meeting national health priorities and principles of assessing communities and communicable disease control. *(Fall, Spring)*

NURS 3200. Research and Theoretical Foundations of Nursing. (3) Prerequisites: admission to the RN-BSN Curriculum. Exploration of the theoretical foundations of nursing with emphasis on research, theories, concepts and processes leading to their application in practice. *(Fall, Spring)*

NURS 3201. Nursing Care of the Childbearing Family. (6) Prerequisites: Level I courses. Development of competencies for the nursing care management of childbearing families with emphasis on the nurse's role in health assessment, health promotion, and promotion of adaptive processes for childbearing families. Sociocultural, economic, political and ethical factors that impact on health promotion, disease prevention, and risk reduction for the childbearing family are examined. Selected settings are utilized for clinical practice. *(Fall)*

NURS 3202. Nursing Care of Children. (6) (O) Prerequisites: Level I courses. Development of competencies for the nursing care management of children experiencing potential and actual alteration in health with emphasis on the nurse's role in health assessment, health promotion, and promotion of adaptive processes for the child within the context of the family. Selected settings are utilized for clinical practice. *(Fall)*

NURS 3203. Nursing Care of the Adult I. (6) Prerequisites: Level I courses. Development of selected competencies for nursing care management of adult clients with predictable human responses to specific system alterations. Risk reduction, recovery and rehabilitation of clients with selected disease processes are addressed within the ethic of caring. Selected settings are utilized for clinical practice. *(Fall)*

NURS 3205. Pharmacology in Health and Illness. (3) Prerequisite: 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. *(Fall, Spring)*

NURS 3206. Skill Set II – Intermediate. (1) Prerequisite: NURS 3106 (Skill Set I – Basic.) Co-requisite: NURS 3430 (Practicum in Illness and Disease Management) and NURS 3440 (Practicum with the Emerging and Developing Family.) The acquisition of intermediate psychomotor activities for the care of simulated clients with intermediate disease processes. Three hours of skills lab per week in a learning module format. After successful completion of this course, students will be eligible to be listed on the North Carolina Board of Nursing Nurse Aide II Registry. *(Fall, Spring)*

NURS 3230. Illness and Disease Management. (3) Corequisites: NURS 3205; NURS 3206 and NURS 3430. Focus on health promotion strategies and nursing interventions appropriate for planning care of adult clients with basic pathophysiological alterations. *(Fall, Spring)*

NURS 3240. The Emerging and Developing Family. (3) (W) Corequisite: NURS 3440 (Practicum with the Emerging and Developing Family.) Foundations of nursing care of families during the childbearing and childrearing years. Emphasis on health assessment, health promotion and promotion of adaptive processes of the individual and the family during pregnancy, birth transition to parenthood and childhood from infancy through adolescence, including alterations in family. This course meets the university General Education Requirement for three semester hours of a Writing in the Discipline Course. *(Fall, Spring)*

NURS 3251. Advanced Professional Roles and Issues. (3) Prerequisite: Level II courses. Exploration of societal and professional trends and issues affecting nursing and health care. Leadership strategies within the profession and practice of nursing. Principles and implementation strategies of health care management within organizational systems. *(Spring)*

NURS 3252. Community Health Nursing. (6) (W) Prerequisites: Level II courses. 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. Multiple community-based agencies are utilized. Access to a working automobile is required for each clinical day. *(Fall, Spring)*

NURS 3253. Nursing Care of the Adult II. (6) Prerequisites: Level II courses. Focus on selected competencies for designing comprehensive nursing care management of adult clients with complex and unpredictable

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human responses to specific system alterations. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3254. Mental Health Nursing. (6) Prerequisites: Level II courses. Development of competencies necessary for the practice of mental health nursing with emphasis on the use of self in relationships with clients and health team members. The nurse-client relationship provides the framework for exploring the factors impacting the behavior of clients. Selected settings are utilized for clinical practice. *(Fall, Spring)*

NURS 3420. Practicum in Community Assessment. (1) Prerequisite: Admission to the Nursing Major. Co-requisite: NURS 3120. Application of community health theory focusing on assessment of communities, diverse groups and organizations. Forty-five clinical hours (45 hrs.) Access to a working automobile is required for all clinical experiences. *(Fall, Spring)*

NURS 3430. Practicum Illness and Disease Management. (3) Prerequisite: NURS 3108. Prerequisite or Co-requisites: NURS 3205, 3206, and 3230. Clinical practice in health care 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. *(Fall, Spring)*

NURS 3440. Practicum with the Emerging and Developing Family. (3) Prerequisite: NURS 3108. Prerequisite or Co-requisite: NURS 3205 and NURS 3206. Co-requisite: NURS 3240 (The Emerging and Developing Family.) 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. *(Fall, Spring)*

NURS 3895. Independent Study in Nursing. (1-4) Prerequisite: permission of the 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 additional credit as focus of the study varies. No more than six hours in NURS 3895 and/or 4090 may be counted toward degree requirements. *(On demand)*

NURS 4000. Topics in Nursing. (1-3) Prerequisite: permission of the instructor. Critical examination of selected current topics in nursing. *(Fall, Spring)*

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. *(Fall, Spring)*

NURS 4106. Skill Set III – Complex. (1) Prerequisite: NURS 3206. Corequisite: NURS 4130 (Complex Illness and Disease Management.) The acquisition of complex psychomotor skills in caring for simulated clients with complex disease processes. Three hours of skills lab per week in a learning module format. *(Fall, Spring)*

NURS 4120. Psychiatric Mental Health Nursing. (2) Prerequisites: All NURS 3000 level courses; corequisites: NURS 4130, NURS 4420. This course provides 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. *(Fall, Spring)*

NURS 4130. Complex Illness and Disease Management. (3) Prerequisite: NURS 3230. Prerequisite or corequisite: NURS 4106. Co-requisite: 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. *(Fall, Spring)*

NURS 4191. Women's Health Issues. (3) Crosslisted as WMST 4191. Prerequisite: WMST 1101 or permission of the instructor. Exploration of contemporary issues in women's health from the feminist and women's health movement perspectives. *(Yearly)*

NURS 4192. Enhancing Clinical Judgment. (3) Prerequisites: Admission to the RN-BSN Completion option or instructor's permission. Co-requisites: none. 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. *(Yearly)*

NURS 4193. Professional Communication: Clinical Decision Making and Ethical Reasoning. (3) Prerequisite: Admission to the major. This course is designed to provide the student 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. *(On demand)*

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, health care, men's treatment, and women's shelter and advocacy programs. *(Yearly)*

NURS 4201. Information Technology: Applications in Health Care. (2) A study of the use of computers and information technology in health care. Emphasis is placed on development of the knowledge and competencies necessary for selective use, and the evaluation of information, and computer technology and data management in health care. *(Fall, Spring)*

NURS 4203. Leadership in Nursing Practice. (2) Corequisite: NURS 4450. Introduction to leadership

focusing on health care 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. *(Fall, Spring)*

NURS 4240. Population Focused Nursing. (2) Prerequisite: NURS 3120 and 3420. Co-requisite: 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 health care systems. *(Fall, Spring)*

NURS 4420. Practicum in Psychiatric Mental Health Nursing. (3) Co-requisite: NURS 4120 (Psychiatric Mental Health Nursing.) 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 health care team. A variety of clinical settings are used. *(Fall, Spring)*

NURS 4430. Practicum in Complex Illness & Disease Management. (3) (O) Prerequisites: NURS 3230 and NURS 3430. Co-requisites: NURS 4106, NURS 4130. Clinical practice in health care settings that correlate with theoretical content related to complex pathophysiological alterations. Students will provide care in diverse clinical settings to continue to develop psychomotor skills and apply knowledge for clinical decision-making and reasoning. This course meets the university General Education Requirement for Oral Communication. *(Fall, Spring)*

NURS 4440. Practicum in Population Focused Nursing. (1) Prerequisite: NURS 3120 and 3420. 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. Forty-five clinical hours (45 hrs.) Access to a working automobile is required for all clinical experiences. *(Fall, Spring)*

NURS 4450. Design and Coordination of Care. (3) (W) Prerequisite: 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 health care settings. Precepted clinical experience with written clinical decision making projects. This course meets the university General Education requirements for Writing in the Discipline. *(Fall, Spring)*

NURS 4900. Research in Nursing Practice. (2) Exploration of research methodologies relative to nursing practice, with emphasis on research utilization and evidence-based practice. *(Fall, Spring)*

OPERATIONS MANAGEMENT (OPER)

OPER 3000. Topics in Operations Management. (3) Prerequisite: OPER 3100. Topics from the areas of Operations Management. The course may be repeated for credit. *(On demand)*

OPER 3100. Operations Management. (3) Prerequisites: MATH 1120, STAT 1220, ACCT 2121, 2122; ECON 2101, 2102; INFO 2130; 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. *(Fall, Spring, Summer) (Evenings)*

OPER 3201. Advanced Operations Management. (3) Prerequisite: OPER 3100 with a C or better or consent of the Department. Cases and/or management simulations enable the student to apply the knowledge attained in Operations Management. The student, through an application forum, should develop in greater depth his/her understanding of the operating functions of an organization. *(Fall)*

OPER 3203. Management Science. (3) Prerequisite: OPER 3100 with a C or better or consent of the Department. Analytical approach to understanding the management process and solving management problems with emphasis on existing models and developing insights for problem development and model building. *(Fall, Spring)*

OPER 3204. Management of Service Operations. (3) Prerequisites: OPER 3100 with a C or better or consent of the Department. Solving problems and directing employees in service organizations. Topics include location, design, layout, queuing, capacity, scheduling, routing, change, management and quality control. *(Spring)*

OPER 3206. Managing for Quality. (3) Prerequisites: OPER 3100 with a C or better or consent of the Department. 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. *(Fall, Spring)*

OPER 3208. Supply Chain Management. (3) Prerequisites: OPER 3100 with a C or better or consent of the Department. 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. *(Spring)*

OPER 3500. Cooperative Education or 49ership Experience. (0) Prerequisite: major in Management Information Systems or Operations Management. Enrollment in this course is required for the Department's cooperative education and 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 registration fee for transcript notation (49ership and co-op) and receive full-time

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student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. (*Fall, Spring, Summer*)

OPER 3800. Directed Study. (1-6) Prerequisites: Consent of the 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. (*On demand*)

OPERATIONS RESEARCH (OPRS)

All OPRS/MATH/STAT courses offered by the Department of Mathematics and Statistics are approved to satisfy requirements for the Problem Solving Goal of UNC Charlotte Education.

OPRS 3111. Operations Research: Deterministic Models. (3) Prerequisites: MATH 1242 and 2164. Linear, integer and dynamic programming, the simplex method, networks, PERT and CPM techniques, game theory, and applications. (*On demand*)

OPRS 3113. Operations Research: Probabilistic Models. (3) Prerequisite: MATH 1242, 2164, and STAT 2122 or MATH/STAT 3122, or consent of the Department. Queueing models, inventory models, simulation, markov chains, decision analysis, game theory and probabilistic dynamic programming. (*On demand*)

OPRS 4010. Topics in Decision Mathematics. (2-3) Prerequisite: Consent of the Department. Topics in decision mathematics selected to supplement regular course offerings in this area of mathematics. May be repeated for additional credit with the approval of the Department. Credit for the M.A. degree in Mathematics requires approval of the Department. (*On demand*)

OPRS 4113. Game Theory. (3) Prerequisites: OPRS 3111 and one of STAT 2122, MATH/STAT 3122, or OPRS 3113. 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 will be required of all graduate students. (*On demand*)

OPRS 4114. Dynamic Programming. (3) Prerequisites: ITCS 1214, OPRS 3111, and one of STAT 2122, MATH/STAT 3122 or OPRS 3113. 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 will be required of all graduate students. (*On demand*)

PHILOSOPHY (PHIL)

PHIL 1105. Critical Thinking. (3) Fundamental skills of clear thinking and critical assessment of typical messages

by and between persons in everyday situations. Application of logical methods to advertisements, editorials, political speeches and textbooks to distinguish effective from ineffective forms of reasoning. (*Fall, Spring, Summer*)

PHIL 2101. Introduction to Philosophy. (3) Basic concepts and problems of philosophy such as freedom and determinism, mind-body interaction, the status of moral judgments, and the nature of knowledge. Readings from the works of representative philosophers both classical and contemporary. Crosslisted 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. (*Fall, Spring, Summer*) (*Evenings*)

PHIL 2102. Introduction to Philosophy – Writing Intensive. (3) (W) Basic concepts and problems of philosophy such as freedom and determinism, mind-body interaction, the status of moral judgments, and the nature of knowledge. Readings from the works of representative philosophers both classical and contemporary. Makes substantial use of writing as a tool for learning. Crosslisted as PHIL 2101, but fulfills the general education writing goal. Students can receive credit for either PHIL 2101 or PHIL 2102, but not both. (*Fall, Spring, Summer*) (*Evenings*)

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. (*Fall, Spring, Summer*) (*Evenings*)

PHIL 2165. Introduction to Political Philosophy. (3) Crosslisted as POLS 1170. Survey course which 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. (*Fall, Spring*)

PHIL 2175. Professional Ethics. (3) Basic concepts, principles and cases in ethics for the professions, including a reasoning model for ethical decisions, basic principles and codes of professional ethics, and actual case scenarios from the professions. (*Yearly*)

Prerequisites for upper-level courses. While PHIL 2101 is not a prerequisite for courses at the 3000 level and above, students who have taken PHIL 2101 typically benefit more from upper level philosophy courses than students who have not.

PHIL 3050. Topics. (3) Prerequisite: consent of the Department. Topics chosen from specific areas in philosophy such as freedom and determinism, imagination, detailed study of significant philosophical movements or works. May be repeated for additional credit with the approval of the Department. (*On demand*)

PHIL 3060. Major Figure in Philosophy. (3) Prerequisite: consent of the Department. 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, Heidegger, and others as indicated by departmental needs and interests. May be repeated for additional credit. (*On demand*)

PHIL 3201. Meaning of Death. (3) Crosslisted as RELS 3201. Death in the western tradition. Philosophical, religious, existential, psychological and literary readings clarifying conceptual problems in our ways of speaking about death. Understanding death as a horizon for understanding life. (*On demand*)

PHIL 3205. Philosophy In and Of Literature. (3) Relationship between philosophy and literature with special emphasis on the nature of literature as it presents concepts and evaluations. Readings will be in the theory of literature as well as in contemporary novels, plays and short stories for both their philosophical and their aesthetic properties. (*On demand*)

PHIL 3207. Narrative Philosophy. (3) (W) Prerequisites: Declared Philosophy major or minor; at least junior standing or permission of the instructor. Explores the use of autobiographical and personal writing in philosophy. (*Alternate years*)

PHIL 3211. Ancient Philosophy. (3) Western intellectual and philosophic thought from the early Greeks to the post-Aristotelian period. Readings from the pre-Socratics, Plato, Aristotle, Epicureans, Stoics, Skeptics and Neoplatonists. (*Fall*)

PHIL 3212. 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. (*On demand*)

PHIL 3213. Modern Philosophy from Descartes to Kant. (3) Modern philosophic and scientific thought. Readings selected from representative works in the 17th to the 19th centuries. (*Spring*)

PHIL 3214. Contemporary Philosophy. (3) Main problems of contemporary philosophy; pragmatism, logical positivism, linguistic analysis, existentialism. (*On demand*)

PHIL 3217. American Philosophy. (3) European philosophic movements with counterparts in American thought, leading to distinctly American pragmatism, realism and humanism. Readings from 19th- and 20th-century philosophers. (*On demand*)

PHIL 3219. History of Ethical Theory. (3) Study of major ethical theories in western philosophical tradition: Plato, Aristotle, Kant, Butler, and Mill. Examination of the fundamental approaches to ethics in the western philosophical tradition and of the historical connections among these fundamental theories. Historical connections include the earlier insights and arguments accepted by later thinkers and the development of concepts from earlier theories to later ones. (*Alternate years*)

PHIL 3221. Ethics. (3) A study of the nature and foundations of moral judgment, the principles and criteria for sound moral decisions, and the application of these to contemporary moral issues. Discussion includes such specific problems as: abortion, capital punishment, privacy, war, and sexual morality. (*On demand*)

PHIL 3223. 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. (*On demand*)

PHIL 3225. Aesthetics. (3) Major theories of art, including readings from Aristotle, Kant, Nietzsche, Collingwood, Dewey, Langer and Beardsley. Emphasis on expression, criticism, the work of art, and the creative process. (*Spring*)

PHIL 3226. Social and Political Philosophy. (3) Crosslisted as POLS 3177. 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. Taught by Philosophy Department. (*On demand*)

PHIL 3227. Feminist Philosophy. (3) Crosslisted as WMST 3247. 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. (*Alternate years*)

PHIL 3228. Healthcare Ethics. (3) (W) 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. (*Yearly*)

PHIL 3231. 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.) (*Spring*)

PHIL 3235. Advanced Logic. (3) Advanced systems of logic, with emphasis upon symbolic logic and formal systematic characteristics such as axiomatics and proof techniques. (*On demand*)

PHIL 3241. 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. (*Alternate years*)

PHIL 3242. Philosophy of Religion. (3) Crosslisted 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. (*On demand*)

PHIL 3243. Philosophy of Peace. (3) Crosslisted as LBST 2101-H01. Examination of the nature of peace in relation to the history of war and theory of justice. Relationship between individual, local, state and global values and to the status of the nuclear arms race in the post-cold war world. (*Fall*)

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PHIL 3244. Philosophy of Body. (3) Opportunity to explore physically as well as mentally 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, writing, and the daily practice of hatha yoga and other physical activities. *(Summer)*

PHIL 3245. Philosophy of Mind. (3) Conceptual issues in the mind/body problem and the problem of other minds. Analysis of concepts of intention, motivation, consciousness, imagination and emotion. *(On demand)*

PHIL 3247. Philosophy of Science. (3) Epistemological, methodological, metaphysical, interdisciplinary and meta-disciplinary issues arising out of science with "science" construed very broadly to imply a strong connection with all systematic inquiry, either past or present, into natural or social questions. *(On demand)*

PHIL 3249. Philosophy of Technology. (3) Examination of basic concepts and controversies concerning technology, science, values, and the nature of both ethical and practical judgments. Influence of technology on attitudes toward the environment and self will be combined with more recent concerns such as the siting of hazardous waste dumps and the impact of computer technology on daily lives. Normative and analytic approach is taken toward such issues as hazard assessment, risk management, and decision strategies on democratic control and intelligent use of technical innovation in ways that advance public welfare. *(Alternate years)*

PHIL 3264. Philosophy of Language. (3) An inquiry into the nature of language that will show the close relation of the Anglo-American tradition to logic and the Continental tradition to linguistics. In addition to focusing on the resulting theories of meaning, the course will address special topics such as linguistic creativity and linguistic violence. *(On demand)*

PHIL 3265. Theory of Knowledge. (3) A study of various theories on the nature, foundations and limits of knowledge. Analysis of the notions of knowledge and belief, evidence and the sources of knowledge. Discussion of the principles and criteria for distinguishing knowledge from opinion or belief. Readings from both classical and contemporary sources. *(On demand)*

PHIL 3275. Metaphysics. (3) Inquiry into the most fundamental and comprehensive structures and categories of reality, especially in relation to persons as knowers and agents. Discussion of such topics as: being, existence and truth; substance, essence and accident; universals and individuals; mind, soul, matter and God. *(On demand)*

PHIL 3452. 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. *(On demand)*

PHIL 3791. Honors Thesis I. (2) Prerequisite: consent of the Department. Individual or group inquiry into selected philosophic problems. Exposition and discussion of the results. *(Fall, Spring)*

PHIL 3792. Honors Thesis II. (2) Prerequisite: consent of the Department. A continuation of PHIL 3791 focused on the preparation and presentation of an Honors thesis. *(Fall, Spring)*

PHIL 3851. Practicum in Philosophy. (1-3) Prerequisite: consent of the 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 class, usually PHIL 1105, 2101 or 2105, in the preparation, presentation and evaluation of the course. (Not for teacher licensure.) *(On demand)*

PHIL 3853. Research Methods and Publication. (3) Permission of the instructor required. Individual instruction in current methods of research in philosophy through participation in major faculty research project. No more than six hours may apply towards the major in Philosophy. *(On demand)*

PHIL 3859. Independent Study. (1-3) Prerequisite: consent of the Department. Directed individual study of a philosophical issue of special interest to the student. May be repeated for additional credit as the topics vary and with departmental approval. No more than six hours may apply toward the major in Philosophy. *(On demand)*

PHIL 4050. Topics in Philosophy. (3) Prerequisite: consent of the Department. Extra work is required of students receiving graduate credit. Selected problems and issues in philosophy. May be repeated for additional credit as topics vary. *(On demand)*

PHYSICS (PHYS)

PHYS 1101. Introductory Physics I. (3) Corequisite: PHYS 1101L. Introduction to the fundamental principles of natural phenomena. Topics will be selected from traditional classical subjects (e.g., Newtonian mechanics, electromagnetism) and more recent developments (e.g. nuclear physics, quantum physics) in order to illustrate the logical structure of modern science. *(Fall, Spring, Summer)*

PHYS 1101L. Introductory Physics I Laboratory. (1) 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 a grade of C or better in a previous semester, the student is exempted from taking PHYS 1101L.*** *(Fall, Spring, Summer)*

PHYS 1102. Introductory Physics II. (3) Corequisite: PHYS 1102L; Prerequisite: PHYS 1101 with a grade of C or better. A continuation of PHYS 1101. *(Fall, Spring, Summer)*

PHYS 1102L. Introductory Physics II Laboratory. (1) Prerequisite: PHYS 1101L (or 2101L). Corequisite: PHYS 1102. A continuation of PHYS 1101L. Three laboratory hours each week. ***If a student has completed PHYS 2102L***

with a grade of C or better in a previous semester, the student is exempted from taking PHYS 1102L. (Fall, Spring, Summer)

PHYS 1130. Introduction to Astronomy. (3) Historical beginnings of astronomy. Motions of celestial bodies. Introduction to space science. The solar system. Optical and radio astronomy. Structure and evolution of stars. Galaxies, cosmology. Three lecture hours each week. *(Fall, Spring, Summer)*

PHYS 1130L. Introduction to Astronomy Laboratory. (1) Prerequisite or corequisite: PHYS 1130. Experimental investigations relating to the acquisition of and interpretation of astronomical data. One three-hour laboratory each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2101. Physics for Science and Engineering I. (3) Prerequisite: MATH 1241 with a grade of C or better. Corequisite: PHYS 2101L, MATH 1242. First semester of a two semester calculus-based introductory sequence in general physics with topics selected from kinematics and dynamics of particles, momentum, work, energy, conservation laws, mechanics of rigid bodies, heat, thermodynamics, fluids, electricity and magnetism, wave motion and sound, geometrical and physical optics. Three lecture hours and one recitation hour each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2101L. Laboratory I. (1) Corequisite: PHYS 2101. Experiments selected from mechanics, heat, electricity and magnetism, wave motion and optics. Use of the computer for organizing, graphing and analyzing data. Two laboratory hours each week. *If a student has completed PHYS 1101L with a grade of C or better in a previous semester, the student is exempted from taking PHYS 2101L. (Fall, Spring, Summer) (Evenings)*

PHYS 2102. Physics for Science and Engineering II. (3) Prerequisite: PHYS 2101 with a grade of C or better, and MATH 1242 with a grade of C or better. Corequisite: PHYS 2102L. Continuation of PHYS 2101. Three lecture hours and one recitation hour each week. *(Fall, Spring, Summer) (Evenings)*

PHYS 2102L. Laboratory II. (1) Prerequisite: PHYS 2101L (or 1101L). Corequisite: PHYS 2102. A continuation of PHYS 2101L. Two laboratory hours each week. *If a student has completed PHYS 1102L with a grade of C or better in a previous semester, the student is exempted from taking PHYS 2102L. (Fall, Spring, Summer) (Evenings)*

PHYS 2181. Electronics and Microcomputer Interfacing. (4) Prerequisites: PHYS 2102 and 2102L (or PHYS 1102) with a grade of C or better, and MATH 1242. Study of analog and digital electronics and microcomputer interfacing, including logic gates, counters, decoders, flip-flops, latches, memories, operational amplifiers, analog-to-digital and digital-to-analog converters, IEEE-488, RS-232C and current loop interfaces, interrupts, BASIC programming, and microcomputer input-output techniques. Six lecture/laboratory hours per week. *(Spring)*

PHYS 3000. Topics in Physics. (1-4) Prerequisite: Consent 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. *(On demand)*

PHYS 3101. Topics and Methods of General Physics. (3) Prerequisite: PHYS 2102 and MATH 1242, both with a grade C or better. Integration of mathematical concepts with basic physical principles. Physics topics chosen from material covered in PHYS 2101 and PHYS 2102. Mathematical concepts include approximation methods, integration and differentiation, vector algebra, and coordinate systems. Exercises and problems will emphasize topics traditionally challenging to beginning physics students. *(Spring)*

PHYS 3121. Classical Mechanics I. (3) Prerequisites: PHYS 3101 (or ECGR 3121 or MEGR 2142) with a grade of C or better, and MATH 2171. Corequisite: MATH 2241. First course of a two-semester sequence treating particle dynamics, the motion of systems of particles, rigid body motion, moving coordinate systems. Lagrange's equations, Hamilton's equations and small oscillations. *(Fall)*

PHYS 3141. Introduction to Modern Physics. (3) Prerequisite: PHYS 2102 (or PHYS 1102) and MATH 1241, both with a grade of C or better. 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. *(Fall, Spring)*

PHYS 3151. Thermal Physics. (3) Prerequisites: PHYS 3141 with a grade of C or better, CHEM 1251 and 1251L, MATH 2241. An introduction to heat, thermodynamics, kinetic theory, and statistical physics. Topics include classical thermodynamics, classical and quantum theory of specific heats, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distributions. Three lecture hours a week. *(Spring)*

PHYS 3281. Advanced Laboratory in Waves and Optics. (2) Prerequisite: PHYS 3141 or consent of the instructor. Selected laboratory work in physical optics. Areas of study include properties of light sources and detectors; interferometry; fiber optics; optical retardation; and dispersion. Emphasis on the development of sound laboratory techniques, methods of data analysis, and the writing of formal laboratory reports. Three hours of laboratory each week. *(Spring) (Alternate years)*

PHYS 3282. Advanced Laboratory in Modern Physics. (3) (W) (O) Prerequisites: PHYS 3141 with a grade of C or better. 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. *(Spring)*

PHYS 3283. Advanced Laboratory in Classical Physics. (3) (W) Prerequisite: PHYS 3101 with a grade of C or better. 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. *(Fall)*

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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 once with permission of the Department. This course is offered on a *Pass/No Credit* basis. (*On demand*)

PHYS 3590. Physics Cooperative Education or 49ership Experience. (0) Prerequisites: junior standing and consent of Department. Registration in PHYS 3590 is required of 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 registration fee for transcript notation (49ership and co-op) and receive full-time student status (co-op only). Assignments must be arranged and approved in advance. Course may be repeated; evaluation is Satisfactory/Unsatisfactory. For more information, contact the University Career Center. (*Fall, Spring, Summer*)

PHYS 3900. Senior Project. (2-3) Prerequisites: senior standing and consent of the faculty member overseeing the project; PHYS 3282 and 3283. Independent investigation under the supervision of faculty member on a project that is approved by the departmental Undergraduate Studies Committee. (*On demand*)

PHYS 4000. Selected Topics in Physics. (1-4) Prerequisite: Consent 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. (*On demand*)

PHYS 4140. Nuclear Physics. (3) Prerequisites: PHYS 3141 with a grade of *C* or better, and MATH 2171. A study of the nucleus, radioactivity, nuclear reactions, fission, fusion, interactions of radiation with matter and measurement of radiation. (*Spring*) (*Alternate years*)

PHYS 4181. Solid State and Semiconductor Physics Laboratory. (3) Prerequisite: PHYS 4241 or MEGR 3131 or consent of instructor. Laboratory in solid state physics and semiconductor device physics, including electrical and photoconductivity; fluorescence, photoluminescence and Raman Scattering; semiconductor device characteristics; superconductivity; and the Hall Effect. Six laboratory hours each week. (*On demand*)

PHYS 4210. Theoretical Physics. (3) Prerequisite: Consent of Department. Topics include: Matrices, power series, solutions to ordinary and partial differential equations. Hilbert space, Fourier integrals, boundary value problems, Green's functions, and complex analysis. (*On demand*)

PHYS 4222. Classical Mechanics II. (3) Prerequisite: PHYS 3121, MATH 2241. Continuation of PHYS 3121. (*Spring*)

PHYS 4231. Electromagnetic Theory I. (3) Prerequisites: For physics majors, PHYS 3121 with a grade of *C* or better; Others: Consent of the instructor, MATH 2171, and MATH 2241. Corequisite: MATH 2242. (*Spring*)

PHYS 4232. Electromagnetic Theory II. (3) Prerequisite: PHYS 4231 with a grade of *C* or better. A continuation of PHYS 4231. Three lecture hours each week. (*Fall*)

PHYS 4241. Quantum Mechanics I. (3) Prerequisites: MATH 2241 and 2171 with a grade of *C* or better. For physics majors, PHYS 3141 and 3101 with a grade of *C* or better; Other majors: Consent of instructor. The first semester of a two semester sequence that provides a senior-level treatment of physical systems at the atomic level. Topics include: Planck's postulate and blackbody radiation, solutions of the time-dependent Schrödinger equation, one electron atoms, magnetic dipole moments, spin, and transition rates. (*Fall*)

PHYS 4242. Quantum Mechanics II. (3) Prerequisite: PHYS 4241 with a grade of *C* or better. A continuation of PHYS 4241. Topics include: multi-electron atoms, quantum statistics, molecules, conductors, and semi-conductors. (*Spring*)

PHYS 4271. Waves and Optics. (3) Prerequisites: PHYS 2102 with a grade of *C* or better, senior standing, and MATH 2171. Exceptions by consent of the instructor. Topics include the mathematics of wave motion, light as an example of an electromagnetic wave, the superposition of periodic and non-periodic waves, and selected topics from geometrical and physical optics. (*Fall*)

PHYS 4281. Advanced Laboratory in Modern Optics. (3) Prerequisite: PHYS 3141 or consent of the instructor. Laboratory in Modern Optics. Characteristics of light sources and detectors; interferometry; fiber optics and fiber optics sensors; holography; and heterodyned optical signals. Emphasis on the development of sound laboratory techniques, methods of data analysis, and the writing of formal laboratory reports. Credit cannot be obtained for both PHYS 3281 and PHYS 4281. Six hours of laboratory each week. (*Spring*) (*Even years*)

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 up to four hours credit. No more than two credit hours may be applied toward the degree requirements for "additional hours at the 3000/4000 level." (*On demand*)

POLITICAL SCIENCE (POLS)

Course offerings, including introductory courses, are divided into the following major subfields: American Politics and Public Administration, Comparative and International Politics, Political and Legal Philosophy, and Research and Practice of Political Science.

American Politics and Public Administration

POLS 1110. Introduction to American Politics. (3) 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. (*Fall, Spring, Summer*)

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. *(Yearly)*

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. *(On demand)*

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. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

POLS 3115. Civil Rights and Liberties. (3) Utilizes public policy analysis to illuminate judicial decisions and opinions relating to contemporary civil rights and liberties. *(Yearly)*

POLS 3116. Judicial Process. (3) Introduction to the nature and functions of law; survey of Supreme Court decision making. *(Yearly)*

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. *(Yearly)*

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. *(Yearly)*

POLS 3123. Urban Political Geography. (3) Crosslisted 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. *(Alternate years)*

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. *(Yearly)*

POLS 3125. Health Care Policy. (3) An overview of the development and current functioning of U. S. health care system and public policies regarding the organization, delivery and financing of health care at the federal, state, and local levels. *(Yearly)*

POLS 3126. Administrative Behavior. (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. *(Yearly)*

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. *(Yearly)*

POLS 4110. North Carolina Student Legislature. (3) (W) **(O)** 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. *(Spring)*

Comparative and International Politics

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POLS 1130. Introduction to Comparative Politics. (3) Political comparison among nations, diverse geographical emphases, including Latin America, Europe, Asia and Africa. (*Fall, Spring, Summer*)

POLS 1150. Introduction to International Politics. (3) 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. (*Fall, Spring, Summer*)

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. (*On demand*)

POLS 3131. Political Development. (3) Comparative study of how and why political systems change, with particular emphasis on the politics and political economy of countries in the developing World. (*Yearly*)

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. (*On demand*)

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. (*Yearly*)

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. (*Yearly*)

POLS 3141. European Politics. (3) Comparative analysis of selected European governments including Great Britain, France, Germany, and Italy. (*Yearly*)

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. (*Yearly*)

POLS 3144. Latin American Politics. (3) 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. (*Yearly*)

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. (*Yearly*)

POLS 3151. International Political Economy. (3) 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. (*Yearly*)

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. (*Yearly*)

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. (*Yearly*)

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. (*Yearly*)

POLS 3155. Latin American Political Economy. 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. (*Yearly*)

POLS 3157. American Foreign Policy. (3) A survey of the key issues affecting the conduct of U.S. foreign policy with attention to the formulation and implementation of foreign policy decisions with particular reference to some of the more critical foreign policy issue areas. (*Yearly*)

POLS 3161. Defense and Security Policy. (3) Review of constitutional provisions for national security and defense policy in the U.S., overview of democratic environments as they relate to defense and national security. Analysis of "security" as it was defined in "Cold War" terms and of trends and conditions of international conflict and political change. Particular attention to the impact of the demise of the Soviet Union and the restructuring of Eastern Europe. Impact of global security issues on national security and defense decisions. (*Yearly*)

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. (*Yearly*)

POLS 3164. U.S.-Latin American Relations. (3) 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. *(Yearly)*

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. *(Yearly)*

POLS 3169. Foreign Policy of African States. (3) Crosslisted as AAAS 4105. Prerequisite: any upper-division course on Africa. A theoretical approach to the study of external and internal factors influencing the development, implementation, and conduct of foreign policy of African states. *(Spring)*

POLS 4163. Model United Nations. (3) (W) (O) Prerequisite: permission of instructor. Preparation for and participation in the Model United Nations (simulation of the United Nations). Includes study of the background of country to be represented; the history, structure and procedures of the United Nations; drafting of resolutions and position papers; and public speaking and caucusing. May be repeated for credit. *(Spring)*

Political and Legal Philosophy

POLS 1170. Introduction to Political Philosophy. (3) Crosslisted as PHIL 2165. 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. *(Fall, Spring)*

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. Course may be repeated with permission of instructor. *(On demand)*

POLS 3171. History of Classical Political Philosophy. (3) Major concepts and systems of political philosophy of Ancient Greece and Rome. *(Fall)*

POLS 3172. African-American Political Philosophy. (3) Crosslisted as AAAS 3179. Prerequisite: 3000 level course on Africa from AAAS, HIST, or POLS. Major competing ideologies in African-American political philosophy. *(On demand)*

POLS 3173. History of Modern Political Philosophy. (3) Major concepts and systems of western political philosophy from the 16th-19th century. *(Spring)*

POLS 3174. Democracy. (3) Study of the justifications and criticisms of various philosophies about the nature of democracy and comparison of these ideas to democratic practice based on historical and contemporary sources. *(On demand)*

POLS 3175. Philosophy of Law. (3) Philosophy underlying the legal system and the Anglo-American practice of law. Will usually include topics such as what is "law," obligation to obey the law, liberty, privacy and tolerance, and criminal responsibility and punishment. *(Yearly)*

POLS 3177. Social and Political Philosophy. (3) Crosslisted as PHIL 3226. 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. *(On demand)*

Research and Practice of Political Science

POLS 2220. Political Science Methods. (4) Prerequisite: at least one introductory Political Science course. 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, and manipulate data with computer statistical packages. Restricted to Political Science majors. Recommended to be taken before majors begin to take upper level courses. Three hours of lecture and one hour of computer laboratory per week. *(Fall, Spring)*

POLS 4400. Internship in Political Science. (3-6) Prerequisite: Consent of the 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. *(Pass/No Credit) (Fall, Spring, Summer)*

POLS 4600. Senior Seminar. (3) (O, W) Prerequisite: POLS 1110, POLS 1130, POLS 1150, and POLS 2220. Capstone course for majors only. Seminar style exploration of a selected topic in the discipline. Includes writing a research paper and presenting the results to the class. *(Fall, Spring)*

POLS 4800. Independent Study. (1-3) Prerequisite: Consent of the 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. *(Fall, Spring, Summer)*

POLS 4990. Senior Thesis. (3) (W) Prerequisite: POLS 2220. The student completes 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. *(Fall, Spring, Summer)*

PORTUGUESE (PORT)

PORT 1201. Elementary Portuguese I. (4) Fundamentals of the Portuguese language, including speaking, listening comprehension, reading, and writing. *(Fall)*

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PORT 1202. Elementary Portuguese II. (4) Prerequisite: PORT 1201 or permission of the Department. Fundamentals of the Portuguese language, including speaking, listening comprehension, reading, and writing. (*Spring*)

PORT 2201. Intermediate Portuguese I. (3) Prerequisite: PORT 1202 or permission of the Department. Review of grammar, with conversation and composition. (*Fall*)

PORT 2202. Intermediate Portuguese II. (3) Prerequisite: PORT 2201 or permission of the Department. Continued review of grammar, conversation, and composition. (*Spring*)

PSYCHOLOGY (PSYC)

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. All psychology majors and those who wish to apply this course as partial fulfillment of the University science and technology requirement must take PSYC 1101L during the same semester in which they take PSYC 1101. (*Fall, Spring, Summer*) (*Evenings*)

PSYC 1101L. General Psychology Laboratory. (1) An introduction to laboratory equipment and procedures. Meets two hours per week. (May not be taken apart from the lecture portion of PSYC 1101 except by psychology majors and minors with permission of the Department.) (*Fall, Spring, Summer*) (*Evenings*)

PSYC 2102. Research Methodology. (4) (W) Prerequisites: PSYC 1101 and 1101L, and STAT 1222. Experimental, observational, and correlational methods of psychological research. Basic concepts of philosophy of science will also be discussed. Emphasis on methodology rather than content and applicability of methods to current topics in psychology. Three lecture hours and one two-hour laboratory period a week. (*Fall, Spring*) (*Evenings*)

PSYC 2112. Introduction to Behavior Modification. (4) Prerequisite: PSYC 1101. 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. (On demand)

PSYC 2120. Child Psychology. (3) Prerequisite: PSYC 1101. Psychological development in infancy and childhood, including such topics as biological change, learning, thought, language, social relations, intelligence, and morality. (*Fall, Spring, Summer*)

PSYC 2121. Adolescent Psychology. (3) Prerequisite: PSYC 1101. Developmental and psychological characteristics of adolescents, with emphasis on the developmental transitions, social contexts, and problems of adolescence. (*Fall, Spring*)

PSYC 2124. Psychology of Adult Development and Aging. (3) Crosslisted as GRNT 2124. 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. (*Yearly*)

PSYC 2150. Psychology of Adjustment. (3) Prerequisite: PSYC 1101. 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. (*Fall, Spring*)

PSYC 2160. Introduction to Health Psychology. (3) Prerequisite: PSYC 1101. An 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 health care 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. (*Fall, Spring*)

PSYC 2171. Introduction to Industrial/Organizational Psychology. (3) The 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. (*Fall, Spring*)

PSYC 3001. Topics in Psychology. (3) Prerequisite: Consent of the instructor. Examination of special psychological topics. May be repeated for credit as topics vary.

PSYC 3103. History and Systems of Psychology. (3) Prerequisite: PSYC 1101. Historical antecedents and origins of modern psychology. Emphasis on influential psychological systems such as behaviorism and psychoanalysis. (*Fall, Spring, Summer*)

PSYC 3110. Comparative Psychology. (3) Prerequisite: PSYC 1101. 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. (*Yearly*)

PSYC 3111. Psychology of Learning. (3) Prerequisite: PSYC 1101. (Completion of PSYC 2102 is strongly recommended.) Major theories and empirical findings in the area of learning. (*Yearly*)

PSYC 3113. Physiological Psychology. (3) Prerequisite: PSYC 1101. The relationship of physiological systems to integrated behavior and an introduction to brain-behavior relationships. Emphasis on neural regulation of behavior. (*Fall, Spring, Summer*)

PSYC 3114. Motivation. (3) Prerequisite: PSYC 1101. Current theories and research in the area of motivation. Consideration is given to the role of emotion in human motives. (*Yearly*)

PSYC 3115. Sensation and Perception. (3) Prerequisite: PSYC 1101. An 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. (*Yearly*)

PSYC 3116. Human Cognitive Processes. (3) Prerequisite: PSYC 1101. Processes involved in such complex human behaviors as language (acquisition and usage), memory, and problem solving, with emphasis upon experimental findings and current theories. (*Fall, Spring*)

PSYC 3117. Hereditary Behavior. (3) Prerequisite: PSYC 1101. 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. (*Yearly*)

PSYC 3118. Research Methods in Physiological Psychology. (4) Prerequisites: PSYC 1101 and permission of the 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. (*On demand*)

PSYC 3122. Cognitive and Language Development. (3) Prerequisites: PSYC 1101 and 2120. 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. (*Alternate years*)

PSYC 3123. Social and Personality Development. (3) Prerequisites: PSYC 1101 and 2120. 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. (*Alternate years*)

PSYC 3125. Older Worker and Retirement. (3) (W) Prerequisite: Consent of the 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. (*Alternate years*)

PSYC 3126. Psychology of Women. (3) Crosslisted as WMST 3226. Prerequisite: PSYC 1101. 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. (*Spring*)

PSYC 3130. Social Psychology. (3) Prerequisite: PSYC 1101. 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. (*Fall, Spring*)

PSYC 3135. Psychology of Personality. (3) Prerequisite: PSYC 1101. Current personality theories. Consideration given to psychoanalytic, physiological, trait and factor, the perceptual viewpoints in the light of contemporary research. (*Fall, Spring, Summer*)

PSYC 3140. Basic Processes in Psychological Assessment. (3) Prerequisites: PSYC 1101 and 1101L, and STAT 1222; PSYC 2102 recommended. 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. (*Yearly*)

PSYC 3151. Abnormal Psychology. (3) Prerequisite: PSYC 1101. A history of psychopathology. Case studies, differential diagnosis, psychological dynamics of abnormal behavior, including theoretical, clinical, and experimental contributions in the field. (*Fall, Spring, Summer*)

PSYC 3152. Child Psychopathology. (3) Prerequisites: PSYC 1101, 2120 and 3151. Principles of classification, assessment and treatment of children and adolescents who display deviant affective, cognitive, and social behavior. (*Alternate years*)

PSYC 3155. Community Psychology. (3) 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. (*Yearly*)

PSYC 3172. Psychology of Personnel: Employee Selection and Classification. (3) Prerequisite: PSYC 2171 or consent of instructor. Methods, techniques, and procedures used to select and classify employees. (*Fall*)

PSYC 3173. Psychological Bases of Training Programs. (3) Prerequisites: PSYC 1101 and 2171, or consent 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. (*Spring*)

PSYC 3174. Organizational Psychology. (3) Prerequisite: PSYC 2171. 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. (*Spring and Some Summers*)

PSYC 3216. Introduction to Cognitive Science (3) Crosslisted as ITCS 3216. Prerequisite: Permission of the 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. (*Spring, Alternate Years*)

PSYC 3313. Neuropsychology. (3) Prerequisite: PSYC 3113 or equivalent. 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

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function and of human neuropsychology, including higher functions (e.g., memory and language); and neuropsychological assessment. (*Yearly*)

PSYC 3316. Cognitive Neuroscience. (3) Prerequisite: PSYC 3113 or 3116 or equivalent. 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. (*Yearly*)

PSYC 3405. Practicum in Applied Psychology. (1-4) Prerequisites: junior standing, permission of the instructor, and the Psychology Department. Work in practical settings related to psychology under the supervision of a faculty member. May be repeated for credit with departmental permission. The student must have obtained approval in the semester preceding the semester in which the practicum is to be taken. Offered only on a *Pass/No Credit* basis. (*Fall, Spring*)

PSYC 3790. Honors Thesis I. (3) Prerequisite: Permission of instructor. Initiation of independent Honors research, including the preparation and defense of a formal thesis proposal. (*Fall, Spring, Summer*)

PSYC 3791. Honors Thesis II. (3) Prerequisite: PSYC 3790. Completion of independent Honors research, including the preparation and defense of a formal Honors thesis. (*Fall, Spring, Summer*)

PSYC 3806. Individual Studies in Psychology. (1-4) Prerequisites: permission of the instructor and the Department. Directed individual study that may take the form of initiating, designing and conducting an original research problem, or a critique and synthesis of existing research. May be repeated for credit. The student must have obtained approval in the semester preceding the semester in which the course is to be taken. (*Fall, Spring, Summer*)

PSYC 4006. Selected Topics in Psychology. (3) Prerequisite: junior or senior standing. Examination of special psychological topics. (*On demand*)

PSYC 4140. Tests and Measurements. (3) Prerequisite: PSYC 1101. 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. (*On demand*)

PSYC 4152. Psychology of Exceptional Children. (3) Assessing and treating the exceptional child. Emphasis on current research in several diagnostic categories, including the emotionally disturbed, learning disabled, mentally retarded, physically handicapped and gifted. (*On demand*)

PSYC 4612. Seminar in Behavior Modification. (3) Prerequisites: PSYC 2102, 2112 and 3112. Current issues in behavior modification, including an integration of principles, techniques and practical experiences. Emphasizes development of written and oral communication skills. (*On demand*)

PSYC 4613. Seminar in Physiological Psychology. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better

and permission of the instructor. PSYC 3113 or equivalent 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. (*Yearly*)

PSYC 4619. Seminar in Experimental Psychology. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better and permission of the instructor. In-depth examination of an area of current concern in the psychological laboratory. Each semester will have a different focus such as discrimination, learning, memory, experimental analysis of behavior and attention. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4625. Seminar in Developmental Psychology. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better permission of the instructor, and either 2120, 2121, or 2124. Concentrated examination of selected current issues and research in a field of developmental psychology. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4630. Seminar in Social Psychology. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better, PSYC 3130, and permission of the instructor. 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. (*Yearly*)

PSYC 4650. Seminar in Human Adaptation and Behavior. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better, and permission of the instructor. Intensive reading and discussion in selected areas of psychology, such as stress, personality, emotions and psychopathology. Emphasizes development of written and oral communication skills. (*Yearly*)

PSYC 4655. Seminar in Community Psychology. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better, 2150, 3151, and permission of the instructor. 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. (*Yearly*)

PSYC 4660. Seminar in Health Psychology. (3) (W) (O) Prerequisite: PSYC 2102 with a grade of C or better, and permission of the instructor. 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. (*Yearly*)

PSYC 4670. Seminar in Industrial Psychology. (3) (W) (O) Prerequisites: PSYC 2102 with a grade of C or better, 2171, and permission of instructor. 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. (*Yearly*)

READING (READ)

READ 3224. Teaching Reading to Primary Level Learners. (3) (W) 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. *(Fall, Spring)*

READ 3226. Teaching Reading to Intermediate Grade Learners. (3) (W) 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. *(Fall, Spring)*

READ 3255. Integrating Reading and Writing Across Content Area. (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. *(Fall, Spring)*

RELIGIOUS STUDIES (RELS)

RELS 1101. An Introduction to Religious Studies. (3) (W) An introduction to the study of the religious dimensions of human existence. *(Fall, Spring, Summer) (Evenings)*

RELS 1120. The Bible and its Interpreters. (3) An introduction to the history of biblical interpretation from the pre-canonical era to the present. *(Yearly)*

RELS 2000. Topics in Religious Studies. (1-3) Credit hours vary with topics. Special topics in Religious Studies. May be repeated for credit as topics vary. *(On demand)*

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. *(Fall, Spring) (Evenings)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Yearly)*

RELS 2105. New Testament and Christian Origins. (3) Emergence of Christianity in its cultural context. Analysis of selected early Christian writings in English translation. *(Fall, Spring)*

RELS 2108. Religion in American Culture. (3) The role of religion in the shaping of American culture. *(Fall, Spring)*

RELS 2216. The Modern Middle East. (3) Crosslisted 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. *(Fall)*

RELS 2600. Approaches to the Study of Religion. (3) (W) 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. Majors only. *(Fall, Spring)*

RELS 3000. Topics in Religious Studies. (3) Treatment of a special topic in religious studies. May be repeated for credit as topics vary. *(On demand)*

RELS 3050. Topics in Religion and Modern Culture. (3) Treatment of a special topic in religion and modern culture. May be repeated for credit as topics vary. *(Yearly)*

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. *(Yearly)*

RELS 3104. Prophecy and Prophetic Literature in Ancient Israel. (3) Prerequisite: RELS 2104 or consent of the 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. *(On demand)*

RELS 3107. The Psalms and Wisdom Literature of Israel. (3) Prerequisite: RELS 2104 or consent of the instructor. The origin and content of the Psalms and the place of wisdom literature in the development of Hebrew thought. *(On demand)*

RELS 3110. Judaism. (3) The development of Jewish religious thought from antiquity to the present. *(Yearly)*

RELS 3111. Women in Judaism. (3) Crosslisted as WMST 3111. A survey of the roles and activities in Jewish women throughout Jewish history, as it is portrayed in a diverse sampling of Jewish religious literature and practice. *(Alternate years)*

RELS 3113. Jesus. (3) Prerequisite: RELS 2105 or consent of the instructor. Jesus and the religion he taught from the point of view of the synoptic gospels. *(Alternate years)*

RELS 3116. Paul. (3) Prerequisite: RELS 2105 or consent of the instructor. The writings of St. Paul. The occasion, purpose and significance of each letter for the emerging Christian community. *(Alternate years)*

RELS 3120. Christianity. (3) The world-wide development of the thought and practices of diverse Christian traditions from antiquity to the present. *(Yearly)*

RELS 3122. Esoteric Traditions. (3) The study of one or more particular expressions of religious esotericism (e.g.,

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Jewish Kabbalah; Hindu Tantra; etc.). May be repeated for credit when the subject matter changes. (*On demand*)

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. (*Alternate Years*)

RELS 3131. Islam. (3) The development of the traditions in Islam with emphasis on Islamic culture, literature, and mysticism. (*Yearly*)

RELS 3135. Religion in Nineteenth-Century America. (3) Examination of religious thought, practices, and movements in 19th-century America. (*On demand*)

RELS 3137. Contemporary African-American Religions. (3) African-American religion since World War II. Emphasis on the influence of religion and religious leaders in the struggle for a Black humanity. (*Alternate years*)

RELS 3150. The Black Church/Civil Rights Movement. (3) Crosslisted as AAAS 3150. Role of the black 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. (*Fall*)

RELS 3154. Hinduism. (3) The ancient Vedic traditions and the development of Hinduism. Emphasis is on the role of Hinduism in Indian civilization. (*Alternate years*)

RELS 3157. Buddhism. (3) The historical development of Buddhism with special attention given to its diverse manifestations in South Asia. (*On demand*)

RELS 3163. The Religious Art and Architecture of India. (3) The visual art of Hindus, Buddhists, Jinas, and Muslims in the architecture, paintings, and sculptures of India. (*Yearly*)

RELS 3166. Taoism. (3) Philosophical Taoism as nature mysticism. Comparison with nature mystics in the West. (*Alternate years*)

RELS 3169. Zen Buddhism. (3) Prerequisite: RELS 2102 or consent of the instructor. Buddhist origins in India, development of the Ch'an (Zen) school in China and Japan, and emphasis on the formative influences of Zen on Japanese art and culture. (*Alternate years*)

RELS 3209. Quest in Literature. (3) The spiritual dimension of contemporary and traditional literature. Focus may be on an artist, genre (novel, poetry, drama), or theme. (*On demand*)

RELS 3212. Films and Identity. (3) (W) Themes of religious identity, alienation, search, discovery, sexuality and death as reflected in recent American movies and foreign films. Film laboratory required. (*On demand*)

RELS 3242. Philosophy of Religion. (3) Crosslisted as PHIL 3242. Philosophical implications of religious experience, including the definitions, development, and

diverse forms of the problems of belief and reason in modern thought. (*On demand*)

RELS 3400. Applied Research/Field Work. (3) Prerequisite: major or minor in Religious Studies, 9 earned hours in religious studies, and permission of the instructor. Research and in-service training in business or community-based organizations. Specific content based on contract between student, supervising professor and cooperating organization. (*Approximately 120 contact hours for the semester*) (*On demand*)

RELS 3450. Study Abroad for Religious Studies Majors. (3-6) Prerequisite: Consent of the Department. The examination of an approved topic in the context of study abroad. (*On demand*)

RELS 4000. Topics in Religious Studies. (3) Prerequisite: Consent of the instructor. May be repeated for credit. (*On demand*)

RELS 4010. Major Figure in Religious Studies. (3) (W) The life and works of a major figure who has contributed to religious studies. May be repeated for credit for different figures. (*On demand*)

RELS 4050. Topics in Religion and Modern Culture. (3) Treatment of a special topic in religion and modern culture. May be repeated for credit as topics vary. (*Yearly*)

RELS 4101. Religion and Modern Thought. (3) The interaction of modern thought and modern religious sensibilities. (*Alternate years*)

RELS 4107. Early Judaism. (3) Prerequisite: RELS 2104 or 2105 or 3110 or consent of the 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. (*On demand*)

RELS 4108. Medieval Judaism. (3) Prerequisite: RELS 2104 or 3110 or consent of the 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. (*On demand*)

RELS 4109. Modern Judaism. (3) Prerequisites: RELS 3110 or 4107 or 4108 or permission of the instructor. Historical and conceptual study of Judaism and Jewish experience in Europe, America, and Israel, from the 16th century to the present, with special attention paid to the development of denominations, Zionism, and the Holocaust. (*On demand*)

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. (*Alternate years*)

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. (*Alternate Years*)

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 will be devoted to exploring theoretical models and theological warrants for practices related to objects. *(Alternate Years)*

RELS 4201. Religion, Morality, and Justice. (3) Explore the ethical and social dimensions of selected religious traditions in their cultural contexts. *(On demand)*

RELS 4600. Senior Seminar. (3) (W) (O) Required of majors in final year of studies. *(Fall, Spring)*

RELS 4800. Independent Studies. (1-3) Prerequisite: consent of the instructor. May be repeated for credit. *(Fall, Spring)*

RUSSIAN (RUSS)

RUSS 1201. Elementary Russian I. (4) Fundamentals of the Russian language, including speaking, listening comprehension, reading, and writing. *(Fall)*

RUSS 1202. Elementary Russian II. (4) Prerequisite: RUSS 1201. Fundamentals of the Russian language, including speaking, listening comprehension, reading, and writing. *(Spring)*

RUSS 2201. Intermediate Russian I. (4) Prerequisite: RUSS 1202 or permission of the Department. Review of grammar, with conversation and composition based upon readings in Russian culture and civilization. *(Fall)*

RUSS 2202. Intermediate Russian II. (4) Prerequisite: RUSS 2201 or permission of the Department. Continuation of grammar, conversation, and composition skills, based on readings in Russian literature. *(Spring)*

RUSS 3050 Masterpieces of Russian Literature. (3) (W) Prerequisite: sophomore standing. Conducted in English. No knowledge of Russian required. May be repeated as topic changes. *(On demand)*

RUSS 3201. Advanced Russian Grammar, Composition, and Conversation I. (3) Prerequisite: RUSS 2202 or permission of the 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. *(Fall)*

RUSS 3202. Advanced Russian Grammar, Composition and Conversation II. (3) Prerequisite: RUSS 3201 or permission of the Department. Intensive practice of Russian grammar, speaking, and writing. Additional Russian civilization and culture as students improve their language skills. *(Spring)*

RUSS 3203. Russian Civilization and Culture. (3) (W) Conducted in English. No knowledge of Russian required. 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. *(On demand)*

RUSS 3800 Directed Individual Study. (1-4) Prerequisite: RUSS 3202 or permission of the Department. To be arranged

with the instructor. May be repeated for credit. *(On demand)*

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. *(Fall, Spring)*

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. *(Fall, Spring)*

SECD 3142. Issues in Secondary Education. (2) Prerequisite: admission to Teacher Education. Corequisites: EDUC 4290 and a content methods course. Integration of preservice education and academic concentration course work 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. *(On demand)*

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. *(Fall, Spring, Summer)*

SECD 4441. Student Teaching/Seminar: 9-12 Secondary Science. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary 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. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SECD 4442. Student Teaching/Seminar: 9-12 Secondary Mathematics. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary 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. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SECD 4443. Student Teaching/Seminar: 9-12 Secondary Social Studies. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the

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student's area of specialization conducted in an approved secondary 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. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. (*Fall, Spring*)

SECD 4444. Student Teaching/Seminar: 9-12 Secondary English. (15) Prerequisite: completion of all coursework and approval of an Application to Student Teaching. A planned sequence of experiences in the student's area of specialization conducted in an approved secondary 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. Approximately 35-40 hours per week in an assigned school setting and 10-12 on-campus seminars scheduled throughout the semester. (*Fall, Spring*)

SECD 4472. Secondary Education Clinical Experience. (3) Program of learning activities in the student's area of academic concentration in an approved school setting. (*On demand*)

SOCIOLOGY (SOCY)

SOCY 1101. Introduction to Sociology. (3) The sociological perspective and process; fundamental concepts, principles, and procedures. (*Fall, Spring, Summer*) (*Evenings*)

SOCY 2100. Aging and the Lifecourse. (3) Crosslisted 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. (*Annually*)

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. (*Fall, Spring*)

SOCY 2126. World Population Problems. (3) (W) Crosslisted as ANTH 2126. Prerequisites: None. 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. (*Alternate Years*)

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. Not all sections are offered for "O" credit. (*Fall, Spring, Summer*)

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. (*On demand*)

SOCY 2171. Social Problems. (3) Contemporary social problems and consequences for American society. (*Fall, Spring, Summer*) (*Evenings*)

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. (*Fall, Spring*)

SOCY 3132. Sociology of Sport. (3) Prerequisite: SOCY 1101 or consent of instructor. Dynamics and emergence of sport; reciprocal influence between sport and society; values, norms, and roles in sports. (*On demand*)

SOCY 3143. Social Movements. (3) Prerequisite: SOCY 1101. Analysis of collective behavior, ideology, development, and organizations of movements seeking or resisting change. (*Yearly*)

SOCY 3153. Sociological Theory. (3) Prerequisite: SOCY 1101. Origins and evolution of fundamental sociological concepts and theories. (*Fall, Spring*)

SOCY 3161. Socialization and Society. (3) Prerequisite: SOCY 1101. Analysis and process of socialization, social interaction, and sociocultural dimension of personality. (*Yearly*)

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. (*Yearly*)

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. (*Yearly*)

SOCY 3261. Human Sexuality. (3) Prerequisite: SOCY 1101 or consent of instructor. Human sexuality research; teenage pregnancy; birth control; sex education; sexual fantasy; pornography; homosexuality and bisexuality; sexual communication; and heterosexual alternatives. (*Fall, Spring, Summer*)

SOCY 3267. Sociology of Dying, Death, and Bereavement. (3) Social definitions of death, process of dying, facing death across the life course, grief, bereavement, bioethical issues impacting individuals and society. (*Yearly*)

SOCY 3895. Directed Individual Study. (1-4) Prerequisite: Consent of the instructor. Supervised investigation of a sociological topic. May be repeated for credit; up to six hours may be applied to the major. (*Fall, Spring, Summer*)

SOCY 4090. Topics in Sociology. (1-3) Prerequisite: SOCY 1101. Examination of specialized sociological topics. Examples: Sociology of religion, Modern Japan. May be repeated for credit. (*On demand*)

SOCY 4110. Sociology of Aging. (3) Crosslisted as GRNT 4110. Prerequisite: SOCY 1101 or consent of the 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 health care; emphasis on sociological theories of aging, contemporary research, and the analysis of specific aging policies and programs. (*Fall*)

SOCY 4111. Social Inequality. (3) Prerequisite: SOCY 1101. Distribution of power, privilege, and prestige; correlates and consequences of inequality; national and international comparisons. (*Yearly*)

SOCY 4112. Sociology of Work. (3) Prerequisite: SOCY 1101 or consent of instructor. The emergence of post-industrial society and technological change in the workplace; analysis of their impacts on organizations, workers, family, and community. (*Yearly*)

SOCY 4124. Sociology of the Community. (3) Prerequisite: SOCY 1101. Concepts and methods of community analysis of planned and unplanned community change. (*On demand*)

SOCY 4125. Urban Sociology. (3) Prerequisite: SOCY 1101 or consent of the instructor. Cross cultural analysis of urban development, social structure, ecology, demographic composition, and social problems. (*Yearly*)

SOCY 4130. Sociology of Health and Illness. (3) Prerequisite: SOCY 1101 or consent 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 health care; ethical issues surrounding health and illness; and the development of relevant social policy. (*Yearly*)

SOCY 4131. Family Policy. (3) Prerequisite: SOCY 1101 or consent 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. (*On demand*)

SOCY 4134. Families and Aging. (3) Crosslisted as GRNT 4134. Prerequisite: SOCY 1101 or consent 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. (*On demand*)

SOCY 4135. Sociology of Education. (3) Prerequisite: SOCY 1101 or consent of the instructor. Educational institution; the school class as a social system; the school as a social environment and a complex organization. (*Yearly*)

SOCY 4150. Older Individual and Society. (3) Crosslisted 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. (*Yearly*)

SOCY 4154. Contemporary Social Theory. (3) Prerequisite: SOCY 3153 or consent of instructor. 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. (*On demand*)

SOCY 4155. Sociological Research Methods. (4) Prerequisite: SOCY 3153 or consent of instructor. 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. (*Fall, Spring*)

SOCY 4156. Quantitative Analysis. (4) Prerequisites: SOCY 4155 or consent of instructor. 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. (*Fall, Spring*)

SOCY 4165. Sociology of Women. (3) (W) Crosslisted as WMST 4165. Prerequisite: SOCY 1101 or WMST 1101 and junior standing or consent of the 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. (*Yearly*)

SOCY 4168. Sociology of Mental Health and Illness. (3) (W) Prerequisite: SOCY 1101 or consent 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 health care services; and considerations of mental health care policy. (*On demand*)

SOCY 4172. Sociology of Deviant Behavior. (3) Prerequisite: SOCY 1101 or consent of instructor. Social definition of deviance; examination of the social processes producing unusual, non-standard, and condemned behavior; and social responses to deviant behavior. (*Yearly*)

SOCY 4263. Sociology of Small Groups. (3) (O, W) Prerequisite: SOCY 1101 or consent of instructor. Systematic analysis and application of theoretical and empirical research pertaining to small groups. (*Yearly*)

SOCY 4480. Internship in Sociology. (3-6) Prerequisite: Consent of the 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 six semester hours. Offered only on a *Pass/No Credit* basis. (*Fall, Spring, Summer*)

SOCIAL WORK (SOWK)

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SOWK 1101. The Field of Social Work. (3) Historical development and philosophy of social work as a profession: personal and societal needs; methods and organizational arrangements; and roles and tasks of social workers. *(Fall, Spring, Summer)*

SOWK 2181. Human Behavior in the Social Environment I. (3) Prerequisite: BIOL 1110, SOCY 1101, and PSYC 1101. Prerequisite or corequisite: SOWK 1101. Human behavior and the social environment in relation to developmental theory and transitions across the life span. *(Fall, Summer)*

SOWK 2182. Human Behavior and the Social Environment I. (3) Prerequisite: BIOL 1110, SOCY 1101, and PSYC 1101. Prerequisite or corequisite: SOWK 1101. Transitional and developmental patterns of the individual. *(Fall)*

SOWK 2183. Human Behavior in the Social Environment II. (3) Prerequisite: SOWK 2182. Human behavior in the social environment in relation to interactions among individuals, families, communities, and larger social systems. *(Fall, Summer)*

SOWK 3090. Topics in Social Work. (1-3) Specialized topics in social work. May be repeated for credit as topics vary. (A list of specific courses offered each term is available through campus course listings.) *(Fall, Spring, Summer)*

SOWK 3100. Social Work Research. (3) Prerequisite: Upper Division standing. Introduction to research methods and skills used in social work. *(Fall)*

SOWK 3120. Diversity and Populations-at-Risk. (3) Prerequisite: Upper Division standing. Issues of race, ethnicity, gender, sexual orientation, social class, age, and ability in social work practice. *(Fall)*

SOWK 3181. Practice Methods I. (3) Prerequisite: Upper Division standing. Corequisite: SOWK 3482, SOWK 3683. Generalist social work practice methods with an emphasis on working with individuals. *(Fall)*

SOWK 3182. Practice Methods II. (3) Prerequisite: Upper Division standing, SOWK 3181. Corequisite: SOWK 3483, SOWK 3685. Generalist social work practice methods with an emphasis on working with families and groups. *(Spring)*

SOWK 3184. Practice Methods III. (3) Prerequisite: Upper Division standing, SOWK 3181. Corequisite: SOWK 3484, SOWK 3685. Generalist social work practice methods with an emphasis on working with communities and large systems. *(Spring)*

SOWK 3201. Foundations of Social Welfare. (3) (W) Prerequisite: Upper Division standing. History of and current trends in social welfare; values and conflicts that influence social welfare programming. *(Fall)*

SOWK 3202. Social Welfare Policy. (3) Prerequisite: Upper Division standing and SOWK 3201. Nature and development of social welfare policy; implications of policy for program design and service delivery. *(Spring)*

SOWK 3482. Field Placement I. (6) Prerequisite: Upper Division standing. Corequisite: SOWK 3181. Directed field experience two days per week under supervision in selected community agencies. *(Fall)*

SOWK 3484. Field Placement II. (9) Prerequisite: Upper Division standing, SOWK 3181, SOWK 3482, SOWK 3683. A continuation of SOWK 3482, directed field experience three days per week under supervision in selected community agencies. *(Spring)*

SOWK 3683. Field Seminar I. (1) Prerequisite: Upper Division standing. Corequisite: SOWK 3181. Classroom analysis and discussion of the student field placement experience. *(Fall)*

SOWK 3685. Field Seminar II. (1) Prerequisite: Upper Division standing, SOWK 3181, SOWK 3482, SOWK 3683. Corequisite: SOWK 3182, SOWK 3184. A Continuation of SOWK 3683, classroom analysis and discussion of the student field placement experience. *(Spring)*

SOWK 3895. Directed Individual Study. (1-4) Prerequisite: Consent of the Department. Supervised investigation of a special problem or area of practice. May be repeated for credit. *(Fall, Spring, Summer)*

SOWK 4100. Ethnicity and Aging. (3) Prerequisite: consent of the 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 health care. *(On demand)*

SOWK 4101 Social Work Practice with Older Adults. Prerequisite: Consent of the Department. Social work practice with older adults with an emphasis on assessment, intervention planning, and implementation. *(On demand)*

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. *(Fall, Spring, Summer) (Evenings)*

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. *(Fall, Spring, Summer) (Evenings)*

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 as topics vary. Course conducted in English. *(On demand)*

All 2000-level courses except for SPAN 2009 fulfill the language requirement of non-majors who are required to take one intermediate-level language class. SPAN 2050 counts if it is offered for 3 credits.

SPAN 2050. Topics in Spanish. (1-3) Prerequisite: SPAN 1202 or permission of the Department. Study of a particular facet of the Spanish language, culture or literature. May be repeated for credit as topics vary. (*On demand*)

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. (*Fall, Spring, Summer*)

SPAN 2201. Intermediate Spanish I. (3) Prerequisite: SPAN 1202 or permission of the department. Continued training in grammar. Intensive practice in reading, writing, and speaking. (*Fall, Spring*)

SPAN 2202. Intermediate Spanish. (3) Prerequisite: SPAN 2201 or permission of the Department. Extensive practice in oral and written control of the language on basis of readings from Spanish or Spanish American literature. (*Fall, Spring*)

SPAN 2205. Spanish Conversation. (3) (O) Prerequisite: SPAN 2201 or equivalent. Intensive oral practice in conversation through exploration of varied topics. Speeches, presentations, discussions, and dialogs. (*Fall, Spring*)

SPAN 2210. Introduction to Business Spanish. (3) Prerequisite: SPAN 2201 or permission of the 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. (Alternate to SPAN 2202.) (*Fall*)

SPAN 2211. Spanish for Criminal Justice Professionals. (3) Prerequisite: SPAN 1202. Fulfills the 2000-level language requirement for non-Spanish majors. Spoken and written Spanish for criminal justice professionals. (*Fall*)

SPAN 2212. Spanish for Health Care Professionals. (3) Prerequisite: SPAN 1202. Fulfills the 2000-level language requirement for non-Spanish majors. Spoken and written Spanish for health care professionals. (*Spring*)

SPAN 3009. Masterpieces of Hispanic Literature in English Translation. (3) (W) Prerequisites: sophomore standing and ENGL 1102. Advanced studies of Spanish or Spanish-American literature in English translation. Not applicable toward a Spanish major. May be repeated for credit as topics vary. Course conducted in English. (*On demand*)

SPAN 3019. Hispanic Women Writers in English Translation. (3) (W) Prerequisites: ENGL 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. (*On demand*)

SPAN 3029. Cultural Dimension of Doing Business with Spanish-speaking Countries. (3) Prerequisite: ENGL 1102 or 1103. Development of cultural awareness for conducting business with Spanish-speaking countries and U.S. Hispanic

communities. Not applicable toward Spanish major or minor. Course conducted in English. (*On demand*)

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. May be repeated for credit as topics vary. (*On demand*)

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 as topics vary. (Yearly)

SPAN 3201. Advanced Grammar and Composition. (3) Prerequisite: SPAN 2202 or permission of the Department. Intensive oral and written work in Spanish. (*Fall*)

SPAN 3202. Advanced Conversation and Composition. (3) Prerequisite: SPAN 2202 or permission of the Department. Intensive oral and written work in the language. Reports on collateral readings. (*Spring*)

SPAN 3203. Advanced Grammar, Composition, Syntax, and Rhetoric for Native Speakers. (3) Prerequisite: SPAN 2202 or permission of the Department; student must be a native speaker of Spanish, as determined by the Department. Advanced studies in Spanish grammar, composition, syntax, and rhetoric. Replaces SPAN 3201 and 3202 (*Fall*)

SPAN 3209. Spanish Civilization and Culture. (3) Prerequisite: SPAN 2202 or permission of the Department. Introduction to the cultural heritage of Spain. (*Alternate semesters*)

SPAN 3210. Spanish American Civilization and Culture. (3) Prerequisite: SPAN 2202 or permission of Department. Introduction to the cultural heritage of Spanish America. (*Alternate semesters*)

SPAN 3211. Introduction to Masterworks of Spanish Literature. (3) Prerequisite: SPAN 2202 or permission of the Department. Reading and analysis of representative masterworks of Spanish literature from its origins through the 20th Century. (*Fall*)

SPAN 3212. Introduction to Spanish American Literature. (3) Prerequisite: SPAN 2202 or permission of the Department. Introduction to Spanish American literature from the 16th century through the contemporary period. (*Spring*)

SPAN 3231. Spanish Phonetics. (3) Prerequisite: SPAN 2202 or permission of the Department. Detailed analysis of description and production of Spanish sounds. Practical exercises include phonetic transcription and recordings. (*On demand*)

SPAN 3800. Directed Individual Study. (1-3) Prerequisite: permission of the 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. (*On demand*)

SPAN 4050. Selected Topics in Spanish. (1-3) Prerequisites: two 3000-level courses or permission of the

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Department. Consideration of a predetermined topic. May be repeated for credit as topics vary. (*On demand*)

SPAN 4120. Advanced Business Spanish I. (3) Prerequisites: SPAN 2210, 3201 and an additional 3000- or 4000-level course (3202 recommended), or permission of the 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. (*Fall*)

SPAN 4121. Advanced Business Spanish II. (3) Prerequisites: SPAN 2210, 3201 and an additional 3000- or 4000-level course (3202 recommended), or permission of the 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. (*Spring*)

SPAN 4201. Nineteenth-Century Spanish Literature. (3) Prerequisites: two 3000-level courses or permission of the Department. Survey of Peninsular literature from Costumbrismo through the Generation of 1898. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4202. Twentieth-Century Spanish Literature. (3) Prerequisites: two 3000-level courses or permission of the Department. Treatment of major literary developments from the Generation of 1898 to present day. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4205. Novel of the Golden Age. (3) Prerequisites: two 3000-level courses or permission of the Department. *El Lazarillo* through *El Criticón*. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4206. Theater of the Golden Age. (3) Prerequisites: two 3000-level courses or permission of the Department. Study of works of the leading dramatists of the period. Lectures, discussions, and reports. (*Alternate years*)

SPAN 4210. Studies in Spanish American Poetry. (3) Prerequisites: two 3000-level courses or permission of the Department. Studies of 19th- and 20th-century Spanish American poetry. (*Alternate years*)

SPAN 4211. Studies in Spanish American Prose Fiction. (3) Prerequisites: two 3000-level courses or permission of the Department. Studies of 19th- and 20th-century Spanish American prose fiction. (*Alternate years*)

SPAN 4212. Studies in Spanish American Theater. (3) Prerequisites: two 3000-level courses or permission of the Department. Studies of 20th-century Spanish American theater. (*On demand*)

SPAN 4213. Don Quijote. (3) Prerequisites: two 3000-level courses or permission of the Department. Study of Cervantes's masterpiece. (*On demand*)

SPAN 4410. Professional Internship in Spanish. (1-6) Prerequisites: SPAN 3201 and 3202, or equivalent and consent of the Department. Faculty-supervised field and/or research experience in a cooperating profession (e.g. business) or community organization. Contents of internship based upon a contractual agreement among the student, department, and business or community organization.

Offered on a *Pass/No Credit* basis. (*Fall, Spring, Summer*)

SPAN 4800. Directed Individual Study. (1-3) Prerequisite: permission of the 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. By special permission only. May be repeated for credit. (*On demand*)

SPECIAL EDUCATION (SPED)

SPED 2100. Introduction to Students with Special Needs. (3) Characteristics of students with special learning needs, including those who are gifted and those who experience academic, social, emotional, physical, and developmental disabilities. Legal, historical, and philosophical foundations of special education and current issues in providing appropriate educational services to students with special needs. Field-based clinical activity required. (*Fall, Spring, Summer*)

SPED 3100. Introduction to General Curriculum for Students with Special Needs. (3) Prerequisite: Admission to Teacher Education. 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 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. (*Fall*)

SPED 3173. Special Education Assessment. (3) Prerequisite: Admission to Teacher Education. Fundamental concepts and skills in special education assessment for individuals with exceptional learning needs including curriculum-based assessment, curriculum-based measurement, and formal/standardized assessment. Requires two-hours of clinical field-based assignments each week for 10 weeks. (*Fall*)

SPED 3175. Instructional Planning in Special Education. (3) Prerequisite: Admission to Teacher Education. Strategies for the development, implementation, and monitoring of Individualized Education Plans (IEPs) for students with mild disabilities within the general education curriculum. Through the use of technology, students are expected to demonstrate proficiency in using the general education curriculum to develop and implement IEPs, unit, and individual lesson plans for instruction. (*Fall*)

SPED 3273. Life Skills. (3) Prerequisite: Admission to Teacher Education. Methods and materials for teaching functional skills in daily living, social, and vocational domains that will enable persons with special needs to live independently in their communities. Ecological assessment for life skills planning. (*Fall*)

SPED 3800. Individual Study in Special 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. (*Fall, Spring, Summer*)

SPED 4000. Topics in Special Education. (1-6) May include classroom and/or clinical experiences in the content area. With department approval, may be repeated for credit for different topics. *(Fall, Spring, Summer)*

SPED 4111. Issues in Early Intervention for Children with Disabilities. (3) Prerequisite: Admission to Teacher Education. Current issues and trends in early intervention and preschool services for young children with disabilities and their families. Includes site visits scheduled throughout the semester. *(Fall, Summer)*

SPED 4112. Assessment of Young Children with Disabilities: B-K. (3) Prerequisite or co-requisite: SPED 4111. Strategies for interdisciplinary developmental assessments to identify needs and plan appropriate intervention programs for young children with disabilities and their families. Approximately 20 hours of field experience. *(Fall)*

SPED 4170. Special Education: Consultation and Collaboration. (W) (3) Prerequisite: Admission to Teacher Education. The course is designed to provide 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. A field-based clinical assignment of approximately 10 hours is required. *(Spring)*

SPED 4210. Instructional Methods and Materials: B-K. (3) Prerequisite: Admission to Teacher Education, SPED 4111, SPED 4112. Goal-setting, instructional design, and strategies for teaching young children with disabilities and their families. Includes a field-based assignment of approximately 20 hours. *(Spring)*

SPED 4211. Nature and Needs of Gifted Children. (3) Prerequisite: admission to Teacher Education. Examination of the historical and philosophical perspectives of education for gifted and talented learners with emphasis on answering the question, "What is giftedness?" Issues explored in the course include identification procedures, instructional options, the nature of intelligence and creativity, laws/policies, psychological and emotional correlates of talent, and current research findings. *(On demand)*

SPED 4270. Classroom Management. (3) Prerequisite: Admission to Teacher Education. Theoretical context of positive behavioral support and related applied behavior analysis strategies, including functional behavioral assessment and intervention planning, necessary to manage effectively the classroom behaviors of individuals or groups of students with special needs and to promote success in the learning environment. A field-based clinical assignment of approximately 15 hours is required. *(Spring)*

SPED 4272. Teaching Mathematics to Learners with Special Needs. (3) Prerequisite: Admittance to Teacher Education. This course will provide 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 in the course. *(Spring)*

SPED 4274. General Curriculum Access and Adaptations. (3) Prerequisite: Admission to Teacher Education. 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. *(Spring)*

SPED 4275. Teaching Reading to Learners with Special Needs. (3) Prerequisite: Admittance to Teacher Education. This course will provide students with effective teaching strategies and materials in reading to 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 in the course. *(Fall)*

SPED 4277. Teaching Written Expression to Learners with Special Needs. (3) Prerequisite: Admittance to Teacher Education. This course will provide students with effective teaching strategies and materials in written expression to learners with special needs. A 12-hour field experience is a required component of the course. The field experience will include assessment and application of instructional techniques with students identified as receiving special education services. The course is designed to address core and specific competencies in teaching written expression to students with special needs for teacher licensure in Special Education: General Curriculum as stipulated by the North Carolina Department of Public Instruction *(Fall)*

SPED 4278. Systematic Instruction in the Adapted Curriculum. (3) Prerequisite: Admission to Teacher Education. 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. *(Fall)*

SPED 4316. Transition Planning and Service Delivery. (3) Prerequisite: Admission to Teacher Education. Methods and procedures used in preparing students with disabilities for the world of work and independence are studied. *(Spring)*

SPED 4475. Student Teaching/Seminar: Special Education K-12: General Curriculum. (O) (15) Prerequisite: Application to Student Teaching. 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 spends approximately 35-40 hours per week in an assigned school setting. In addition, the student participates in 8-10 on-campus seminars scheduled throughout the semester. *(Fall, Spring)*

SPED 4476. Student Teaching/Seminar: Special Education K-12: Adapted Curriculum. (O) (15) Prerequisite: Application to Student Teaching. 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 spends approximately 35-40

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hours per week in an assigned school setting. In addition, the student participates in 8-10 on-campus seminars scheduled throughout the semester. (*Fall, Spring*)

STATISTICS (STAT)

All STAT/MATH/OPRS courses offered by the Department of Mathematics and Statistics are approved to satisfy requirements for the Problem Solving (P) Goal of UNC Charlotte Education.

STAT 1220. Elements of Statistics I (BUSN). (3)

Prerequisite: MATH 1100 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 1222. (*Fall, Spring, Summer*) (*Evenings*)

STAT 1221. Elements of Statistics I (BIOL). (3)

Prerequisite: MATH 1100 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 if credit has been received for STAT 1220 or 1222. (*Fall, Spring*)

STAT 1222. Introduction to Statistics. (3) Prerequisite: MATH 1100 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 if credit has been received for STAT 1220 or 1221. (*Fall, Spring, Summer*) (*Evenings*)

STAT 2122. Introduction to Probability and Statistics. (3) Prerequisite: MATH 1242 or consent of the 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. (*Fall, Spring, Summer*) (*Evenings*)

STAT 2223. Elements of Statistics II. (3) Prerequisite: Either STAT 1220, STAT 1221, STAT 1222, STAT 2122 or consent of the Department. Topics include contingency analysis, design of experiments, more on simple linear regression, and multiple regression. Computers will be used to solve some of the problems. (*Fall*)

STAT 3110. Applied Regression. (3) (W) Prerequisite: STAT 2122 or consent of the Department. Ordinary regression models, logistic regression models, Poisson regression models. (*Spring*)

STAT 3122. Probability and Statistics I. (3) Crosslisted as MATH 3122. (*Fall*) (*Evenings*)

STAT 3123. Probability and Statistics II. (3) Crosslisted as MATH 3123. (*Spring*) (*Evenings*)

STAT 3126. Applied Statistical Methods. (3) Prerequisites: MATH 3123 or consent of the Department. Regression analysis, time series analysis, and forecasting. Survival models and their estimation. (*Fall*)

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. Credit will not be given for both STAT 3128 and any of these courses: STAT 2122, MATH 3125, MATH/STAT 3122/3123.

STAT 3140. Design of Experiments. (3)

Prerequisite: STAT 2122 or consent of the 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. (*Fall*) (*Alternate years*)

STAT 3150. Time Series Analysis. (3)

Prerequisites: STAT 2223 or consent of the Department. Stationary time series models, ARMA processes, modeling and forecasting with ARMA processes, ARIMA models for nonstationary time series models, spectral densities. (*Spring*) (*Alternate years*)

STAT 3160. Applied Multivariate Analysis. (3)

Prerequisite: STAT 2223 or consent of the 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. (*Fall*)

STAT 4116. Statistical Computing. (3)

Prerequisites: STAT 3123 or consent of the 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. (*Spring*)

STAT 4123. Applied Statistics I. (3)

Prerequisites: MATH 2164 with a grade of C or better and junior standing, or consent of the 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. (*Fall*) (*Evenings*) (*Alternate years*)

STAT 4124. Applied Statistics II. (3)

Prerequisites: STAT 4123 or consent of the 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. (*Spring*) (*Evenings*) (*Alternate years*)

THEATRE (THEA)

(*See also Dance and Theatre*) (*DATH*)

THEA 1102. 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. *(Fall, Spring on demand)*

THEA 1103. Acting for Non-Theatre Majors. (2) Introduction to the nature of acting for the stage. Study and practice of acting principles, including voice development, movement, and the use of the imagination. (Does not serve as a prerequisite for THEA 2209.) *(On demand)*

THEA 1109. Preliminary Experience in Student Teaching. (1) Prerequisite: THEA 1102. Observation of licensed theatre arts teachers at the secondary school level. Some participation in class activities required. Graded on a Pass/Fail basis. *(Fall, Spring)*

THEA 1203. Stagecraft I. (3) An introduction to scenery construction procedures and techniques. Technical elements of stage lighting are also covered. Some afternoon crew hours required. *(Fall, Spring)*

THEA 1204. Stagecraft II - Drafting for the Stage. (3) Prerequisite: THEA 1203 or consent of instructor. Expansion of THEA 1203 with drafting techniques for scenic design working drawings included. *(On demand)*

THEA 1205. Costuming Techniques and Stage Makeup. (3) Introduction to costume shop equipment, sewing techniques, construction of costume accessories, and theatrical makeup techniques. *(Fall, Spring)*

THEA 1209. Acting I. (3) Prerequisite: DATH 1100. Continuation of the voice/body and improvisational work begun in DATH 1100 while focusing on objectives and text analysis through scene work. Four contact hours. *(Fall, Spring)*

THEA 2101. Play Analysis. (3) Tools for developing an interpretation of the play script, including exploration of the ways scripts are used by directors, actors, designers, and dramaturgs in preparing plays for the stage. Prerequisite for THEA 2216. Play. *(Spring)*

THEA 2103. Costume Design. (3) Costume design theory and history. *(Fall) (Alternate years)*

THEA 2205. Scene Design I. (3) Prerequisite: DATH 1200, THEA 1203 and 2101 or consent of instructor. An introduction to those theories and techniques that are unique to scene design for theatre, dance, and opera. *(Fall)*

THEA 2206. Scene Design II. (3) Prerequisite: THEA 2205. Graphic arts for stage design: drawing, rendering, model construction, and computer modeling. *(On demand)*

THEA 2207. Puppetry. (3) Types of puppets and the history of puppetry with emphasis on basic puppetry construction and production problems. *(On demand)*

THEA 2208. Audition Techniques. (2) Prerequisite: THEA 1209 or permission of instructor. The process of auditioning for stage, commercials, and film. Four contact hours. *(Spring) (Alternate years)*

THEA 2209. Acting II. (3) Prerequisite THEA 1209 or permission of instructor for non-majors. Further development of the skills and techniques used in preparing a role for performance. Advanced scene study and monologue work. Four contact hours. *(Fall)*

THEA 2212. Stage Lighting. (3) Prerequisite: DATH 1200, THEA 1203, THEA 2101, or consent of instructor. An introduction to those theories and techniques that are unique to stage lighting for theatre, dance, and opera. *(Spring)*

THEA 2214. Scene Painting. (3) Prerequisite: DATH 1200 or consent of instructor. An introduction to those theories and techniques that are unique to scene painting for theatre, dance, and opera. *(On demand)*

THEA 2216. Directing I. (3) Prerequisite DATH 1100 and THEA 2101 or consent of instructor. Principles and techniques of play directing including analyzing texts, staging, and communication with actors. *(Fall)*

THEA 2218. Playwriting. (3) (W) Writing scenes for stage or screen and performing dramatic readings of fellow writers' scenes. A number of plays will be analyzed. *(Fall, Spring on demand)*

THEA 2409. Practicum in Creative Drama: K-8. (3) Prerequisite: THEA 1102 or consent 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. *(Spring)*

THEA 3101. Theatre History I. (3) Theatre history from pre-classical periods to the seventeenth century. *(Fall)*

THEA 3102. Theatre History II. (3) Seventeenth century to the present. *(Spring)*

THEA 3209. Acting III. (3) Prerequisite: THEA 2209. In-depth study of sub-text, focusing on 19th Century Modern Realism. May be repeated for credit with change of approach. Four contact hours. *(Spring)*

THEA 3210. Acting IV. (3) Prerequisite: THEA 3209. Exploration of characters focusing on various historical periods, theatrical styles, and cultural influences. May be repeated once for credit. Four contact hours. *(Fall) (Alternate years)*

THEA 3217. Directing II. (3) Prerequisite: THEA 2216. Continuation of THEA 2216, with emphasis on advanced analysis, coaching, communication with designers, and complex staging problems. *(Spring)*

THEA 3467. Student Teaching/Seminar: K-12 Fine and Performing Arts: Theatre. (15) (O) Prerequisite: approved application for student teaching; senior status; completion of professional education requirements; grades of C or better 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. *(Fall, Spring)*

THEA 3691. Individual Project. (6) Prerequisite: Permission of Department Chair. May be repeated for credit. *(Fall, Spring, Summer)*

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THEA 4001. Topics in Theatre. (1-6) (W) Special topic in theatre. May be repeated for credit with change of topic. (*On demand*)

THEA 4220/5220. Methods of Facilitating Learning in Theatre Arts. (3) Prerequisites: THEA 1109, THEA 2410, THEA 2411 and EDUC 2100; Junior standing or consent 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 classes. Includes clinical experience. (*Alternate Fall*)

THEA 4400/5400. Internship in Theatre. (3-6) Prerequisite: GPA of a least 2.5, junior status, 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/Fail basis. (*Fall, Spring, Summer*)

THEA 4410/5410 Practicum in Secondary School Play Production: 9-12. (3) Prerequisite: THEA 1209 and THEA 2216 or consent 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). (*Alternate Spring*)

THEA 4601. Individual Project. (3) Permission of Department Chair. May be repeated for credit. (*Fall, Spring, Summer*)

TRANSLATING (TRAN)

TRAN 3401. Introduction to Translation Studies (3) Prerequisites: Native or near native fluency in English and completion of French, German, or Spanish 2202, or the equivalent, with a grade of C or better. 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. (*Fall*)

TRAN 4402-F. Practicum in Translating I – French (3) Prerequisites: Completion of or concurrent enrollment in TRAN 3401 and a French 3000-level course or equivalent, with a grade of C or better, or permission of the 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. (*Spring/alternate years*)

TRAN 4402-G. Practicum in Translating I – German (3) Prerequisites: Completion of or concurrent enrollment in TRAN 3401 and a German 3000-level course or equivalent, with a grade of C or better, or permission of the 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. (*Spring/alternate years*)

TRAN 4402-S. Practicum in Translating I – Spanish (3) Prerequisites: Completion of or concurrent enrollment in

TRAN 3401 and a Spanish 3000-level course or equivalent, with a grade of C or better, or permission of the department. Comparative stylistics, restructuring texts, editing, troubleshooting, and techniques of the translator in working with a variety of text types (e.g., business legal, medical, technical, etc.). Continues with history and theory of translation. Conducted in English and Spanish. (*Fall*)

TRAN 4403-F. Practicum in Translating II – French (3) Prerequisites: Completion of TRAN 4402-F, with a grade of C or better, or permission of the 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. (*Fall/alternate years*)

TRAN 4403-G. Practicum in Translating II – German (3) Prerequisites: Completion of TRAN 4402-G, with a grade of C or better, or permission of the 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. (*Fall/alternate years*)

TRAN 4403-S. Practicum in Translating II – Spanish (3) Prerequisites: Completion of TRAN 4402-S, with a grade of C or better, or permission of the department. Further work in restructuring texts, editing, troubleshooting, and translation of a variety of literary and cultural text types (e.g., fiction, poetry, drama, essay, film). Continues with history and theory of translation. Conducted in English and Spanish. May count as course work for the Spanish major. (*Spring*)

TRAN 4404-F. Practicum in Translating III – French (3) (W) Prerequisites: Completion of or concurrent enrollment in TRAN 4403-F, with a grade of C or better, or permission of the 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. (*Spring/alternate years*)

TRAN 4404-G. Practicum in Translating III –German (3) (W) Prerequisites: Completion of or concurrent enrollment in TRAN 4403-G, with a grade of C or better, or permission of the 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. (*Spring/alternate years*)

TRAN 4404-S. Practicum in Translating III – Spanish. (3) (W) Prerequisites: Completion of TRAN 4403-S, with a grade of C or better, or permission of the department. Vocational, pre-professionalizing activities. 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 Spanish. (*Spring*)

WOMEN'S STUDIES (WMST)

WMST 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. *(Fall, Spring)*

WMST 2050. Topics in Women's Studies. (1-3) Credit hours vary with topics. Special topics in Women's Studies. May be repeated for credit as topics vary. *(On demand)*

WMST 2110. Women and the Media. (3) Crosslisted 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. *(Fall)*

WMST 2150. U. S. Women's History to 1877. (3) Crosslisted 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. *(Alternate years)*

WMST 2251. U.S. Women's History since 1877. (3) Crosslisted 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. *(Alternate years)*

WMST 2252. European Women's History. (3) Crosslisted as HIST 2152. An exploration of women's experiences in western Europe and Russia, covering topics of religion, work, family, and politics. *(Alternate years)*

WMST 3050. Topics in Women's Studies. (3) Special topics in Women's Studies. May be repeated for credit as topics vary. *(On demand)*

WMST 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. *(Fall, Spring, Summer)*

WMST 3110. Gender and Communication. (3) Crosslisted 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. *(Spring)*

WMST 3111. Women in Judaism. (3) Crosslisted 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. *(Alternate years)*

WMST 3112. Women's Diaries and Women's Experience. (3) This course examines why women keep diaries, how diaries provide an understanding of women's experiences, and how diaries may be read as literature. *(Fall, Spring)*

WMST 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. *(Spring)*

WMST 3131. History of Sexuality. (3) Crosslisted 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. *(On demand)*

WMST 3212. Women and Peacebuilding. (3) Exploration of the contributions women can make and have made to peacebuilding and conflict-resolution. *(On demand)*

WMST 3220. Feminist Thought. (3) (W) Cross-cultural and interdisciplinary survey of the main traditions of feminist theory in the context of their historical and philosophical roots. *(Yearly)*

WMST 3226. Psychology of Women. (3) Crosslisted as PSYC 3126. Prerequisite: PSYC 1101. 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. *(Spring)*

WMST 3227. Feminist Philosophy. (3) Crosslisted as PHIL 3227. 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. *(Yearly)*

WMST 3231. Working Women/Women in Business. (3) Historical, sociological, legal, personal, and cross-cultural issues affecting working women. *(Summer)*

WMST 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. *(Fall, Spring)*

WMST 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 as topics vary. *(On demand)*

WMST 4101. Applied Research/Field Work. (3) Prerequisite: permission of the Women's Studies Coordinator. Research and in-service training in cooperative community organizations that provide services to women and their families. Specific content based on contract between student, supervising professor, and community organization. *(On demand)*

WMST 4165. Sociology of Women. (3) Crosslisted as SOCY 4165. Prerequisite: SOCY 1101 or WMST 1101. Junior standing or permission of the instructor required. 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. *(Yearly)*

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WMST 4191. Women's Health Issues. (3) Crosslisted as NURS 4191. Prerequisite: permission of the instructor. Exploration of contemporary issues in women's health from the feminist and women's health movement perspectives. *(Fall)*

WMST 4228. French Women Writers in Translation. (3) Prerequisites: junior standing and ENGL 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 as topics vary. Course conducted in English. *(On demand)*

WMST 4260. Women: Middle Age and Beyond. (3) Crosslisted as GRNT 4260. Position of older women in society and the particular problems of and issues for women as they age. *(Yearly)*

WMST 4601. Senior Colloquium. (3) Prerequisites: completion of 15 hours in women's studies, or permission of instructor. Critical examination of selected issues. *(On demand)*

FACILITIES AND SERVICES

THE CAMPUS

The campus is located off 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 air-conditioned contemporary buildings. In addition to classrooms and well-equipped laboratories, the University offers arts and athletic facilities, cafeterias, and residence accommodations. The campus is designed for the pedestrian, and facilities are generally accessible to students with disabilities.

UNC Charlotte Uptown. The University offers selected 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. UNC Charlotte Uptown is located at 220 North Tryon Street, on the third floor of the Mint Museum of Craft + Design. When traveling I-77, either north or south, exit onto Fifth Street. Stay on east Fifth Street until you reach Tryon Street.

Parking is the responsibility of Parking Services, located in the Auxiliary Services Building. Parking on campus requires the purchase and display of a University parking permit or payment to park at the meters or in the visitor's decks. Night Decals for evening-only students are available by the semester or by the year. Permits do not guarantee a space will be available nor do they reserve a specific space. Abbreviated copies of the *Campus Parking Rules and Information* are available from Parking Services. The full and abbreviated version is available via the web at www.uncc.edu/parking. For information on fees for motor vehicle registration and parking, see the section on *Financial Information* in this *Catalog*.

The **Charlotte Transit System** provides bus transportation from the Square in uptown Charlotte and from Southpark (via Eastland Mall and the apartment complexes along Barrington Drive, Route 29 & 39). Service is provided on a regular schedule connecting with established routes throughout the city. Brochures containing detailed information regarding routes, schedules, and fees may be obtained in the Parking Services Office, or by calling the Charlotte Transit Authority at (704) 336-3366. Fees are set by Charlotte Transit and are subject to change.

Police and Public Safety services to the University community are provided 24 hours a day, seven days a week. University Police Officers are sworn, North Carolina State Certified Law Enforcement Officers.

The Administrative Offices of Police and Public Safety are located at the new Facilities Management and Police Building on Cameron Blvd. near Mary Alexander; The Police Telecommunication Center is still at its existing location in the King Building on campus. This agency is responsible for crime prevention, enforcement of laws and regulations, protection of life and property, preservation of peace, apprehension of criminals, and Lost and Found property.

Emergency telephones are located throughout the campus and are identified by "blue lights."

More information can be found online at: www.police.uncc.edu/index.htm.

Recycling services are coordinated by the Office of Waste Reduction and Recycling (704-687-2137) within Facilities Management. The University's recycling program, initiated by students in 1990, currently recycles 33% of the solid waste generated on campus, including over 25 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, newspapers, magazines, and cardboard can be recycled at the residence halls. In addition to the above materials, office paper, Styrofoam peanuts, transparencies, and hard and soft back books can be recycled in the academic and administrative areas. The Waste Reduction and Recycling program also includes a food-waste composting project. This project is funded through a grant awarded by the North Carolina Department of Environment and Natural Resources Division of Pollution Prevention and Environmental Assistance, and has been the topic of several graduate research papers.

The recycling program provides educational sessions for students, faculty, and staff. The program coordinates and sponsors the UNC Charlotte Earth Day Environment Festival and co-sponsors 49er Green Day activities with the Dean of Students Office. 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. Active and concerned students designed and initiated the aluminum can and residence hall recycling programs.

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 <http://facilities.uncc.edu/recycling> or call the office at 704-687-2137 or 704-687-3890.

Occupational Safety and Health, Accident Prevention, and Life Safety are the concerns of the Safety and Environmental Health Office in the Department of Human Resources. It is the responsibility of this office to investigate accidents on campus, conduct safety inspections of all buildings, maintain all reports required by the N.C. Department of Labor, and generally work to reduce the risks of illness or injury in the University community. This office is located in 113 King Building.

EDUCATIONAL SERVICES AND FACILITIES

The J. Murrey Atkins Library, located near the center of the campus, is a state-of-the-art facility that houses a collection that includes nearly 1 million bound volumes and extensive education, audiovisual, document and microform collections. Some highlights include:

- Member of ASERL (the Association of Southeastern Research Libraries).
- **Largest research library** in the Southern Piedmont region.
- Nearly **one million volumes** and one million microfilm/fiche.
- Approximately 273,000 volumes circulate each year.
- Current subscriptions include **14,000 periodicals**, about two-thirds accessible electronically.
- Nearly one million patrons annually enter its doors.
- State-of-the-art information technology includes **wireless network** and **250 public computer stations**.
- **Live online help** with Ask A Librarian service.
- **Library instruction facilities** include several electronic presentation and computer equipped classrooms.
- U.S. Government Depository receives 70% of government publications.
- U.S. Patent and Trademark Depository Library.
- NASA Educational Resource Center for Teachers.
- Houses **Curriculum Instructional Materials Collection (CIMC)**.
- **Information Commons** supports research, presentation, production, instruction, and individual and small-group study.
- **Special Collections** includes rare books and manuscripts, oral, photographic and written materials related to the history of the greater Charlotte region and the University archives.
- **Xerox copy center**, the Faculty Center for Teaching and e-Learning and Information & Technology Services located in the Library building.
- Video production and Channel 22 support Distance Education, video conferencing, and television broadcasts to the campus and local community.
- Displays of university-owned art, historical materials, and memorabilia.
- **Full-time security staff** and electronic monitoring.

For further information about library resources and services, check the Library's web page at www.library.uncc.edu.

Information and Technology Services (ITS) manages the campus voice and data networks, centralized servers, University owned PCs, operating systems, and software to support teaching and learning, research and business processes. The campus has a robust data network that connects over 130 servers and more than 3000 computers. Thirty percent of the campus features wireless network access. ITS performs application development and maintains and supports the University's core administrative systems and all of the University's central server resources. ITS manages the general-use student computer labs and provides technical support to students through a walk-up facility and through an online helpdesk tool. ITS provides development, consulting, and support services for the University web presence and its portal - 49er Express, the University's e-learning system, and facilities and services in support of the University's research mission.

University Center for Academic Excellence (UCAE). Designed to improve academic performance and foster meaningful learning experiences, the University Center for Academic Excellence provides services, programs, and materials to help students develop and refine thinking skills, utilize learning and self-management skills, and learn course material more quickly and thoroughly while earning higher grades. Services include: (1) individual consultation regarding academic concerns; (2) diagnostic assessment of learning styles and study habits/attitudes; (3) computer-assisted instruction for a variety of course subjects; (4) "Study Smarter" workshops; and (5) a library of materials with books, DVDs, video tapes, and printed handouts outlining successful study/learning strategies.

Tutorial Services (TS). Well-trained undergraduate and graduate students provide free tutoring to University students in a variety of disciplines. Tutoring is primarily in mathematic, 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 and their effective interpersonal skills. Tutorial Services at UNC Charlotte is nationally certified through the *College Reading and Learning Association*, Level II.

Supplemental Instruction (SI). Supplemental Instruction assists students in historically difficult courses, including biology, chemistry, physics, communication studies, engineering, mathematics, and business. In regularly scheduled group study sessions, trained SI Leaders help students refine the unique skills necessary for doing well in the target course. Students regularly participating in SI average one-half letter grade or higher on final course grades than non-participants.

Structured Study Groups (SSG). SSG is a study system in which students from the same class work together in small groups of 4-6 members to reinforce material presented in class. The UCAE assists students in forming SSG with the support of faculty. SSG encourages students to collaborate on common classroom tasks for deeper understanding of course material. The goal of the SSG is to have each student commit to the "pursuit and ownership" of learning.

Through the **Writing Resources Center**, assistance is provided primarily for undergraduates and graduate students who want to become more effective writers. The center is staffed by graduate and undergraduate writing consultants who work with writers at all stages of the writing process: prewriting, focusing, organizing, revising, and editing. Programs include one-on-one and group consulting; on-line writing consultants for distance education students; classroom presentations; and library and internet research.

The Writing Project (WP) focuses on developing K-12 writing teachers using three interconnected components that are based on the National Writing Project model: 1) the summer invitational institute, 2) continuity programs for teacher consultants in the project, and 3) inservice programs with local school districts. The WP offers inservice teacher training as well as opportunities for K-12 teachers to conduct classroom-based research. Working in conjunction with the College of Education, the WP provides leadership in teacher training.

The Charlotte 49ers Athletic Academic Center. The Athletic Academic Center (146 ATAC) provides academic and personal counseling to student athletes as a supplement to assistance provided by the Advising Center and the regular departmental advisor. Academic advisors provide prospective student-athletes with information on admission procedures and academic requirements, monitor academic progress, arrange supervised study sessions, and make referrals to other campus services.

Disability Services (DS). 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. Disability Services counselors meet with qualified students to determine and provide reasonable accommodations that support the student's educational goals.

Assistive technology is available to students with disabilities in the Disability Services Office, centralized computer labs, the Atkins Library, and in other departments on campus. Service animals assisting individuals with disabilities are permitted to all facilities on campus. Disability Services does not provide prescriptive devices, devices of a personal nature, or personal attendant care.

The Office of Disability Services supports a culturally rich, inclusive, and accessible campus environment through education and consultation with faculty, staff, and the community on disability-related issues.

The Office of Building Educational Strengths and Talents (B.E.S.T.). B.E.S.T. is a federally funded community that provides intensive academic and post-baccalaureate advising, tutorial assistance, and exposure to diverse cultural opportunities to first-generation college students, as well as other select populations with lower retention and graduation rates.

Ronald E. McNair Post-Baccalaureate Achievement Program. This federally supported program is designed to increase the number of low-income and first-generation college students who earn doctoral degrees and teach in colleges and universities. Participants are usually juniors and seniors who work with faculty mentors on research projects and attend other scholarly activities related to pursuing a graduate education. The intent of the program is to introduce students to the rigors of graduate study.

Academic Initiatives for Mentoring Students (AIMS), in the division of Academic Affairs, is committed to providing quality academic support services that foster the recruitment, retention and graduation of all students, especially underrepresented students at UNC Charlotte. AIMS provides academic advising to freshmen and sophomores primarily through three programs: SAFE, UTOP, and PRODUCE. In addition, academic intervention is conducted with underrepresented transfer students through TRACE. AIMS also serves other underrepresented students, some of who are experiencing chronic academic difficulties, by referring them to other University academic support programs that meet their specific needs.

University Transition Opportunities Program (UTOP). UTOP is a summer academic program designed to facilitate the transition from high school to the University for students from typically underrepresented populations by

involving a limited number of incoming freshmen in a rigorous collegiate experience prior to fall semester enrollment. Seven hours of credit are awarded for successful completion of UTOP coursework, which consists of English Composition, Supplemental English, and Freshman Seminar.

University Transition Opportunities Program Learning Community (UTOP-LC). This initiative, sponsored by Academic Initiatives for Mentoring Students (AIMS), is a one-year program limited to freshmen students who participated in the UTOP summer experience. It is designed to have students engaged in coursework and activities that emphasize liberal arts education and diversity, campus connections, and growth and development. Participants continue to enroll in classes together and share living/learning environments during the fall and spring semesters, as they did during the UTOP summer experience. Academic support services and co-curricular activities are also provided throughout the one-year period.

Student Advising for Freshman Excellence (SAFE). The goal of SAFE is to facilitate the transition from high school to college of all incoming underrepresented freshmen. Through orientation sessions, academic advising, academic issues workshops, mid-semester evaluations, student advising, individual and group tutoring, co-curricular and social activities, and weekly meetings with student counselors, SAFE empowers students to acquire the skills necessary for academic success and the establishment of rewarding careers. Some students are eligible to participate during the sophomore year.

Producing Readiness of Diverse University Cohorts in Education (PRODUCE). UNC Charlotte is one of the eight schools in the University of North Carolina system that has received a 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.

Transfer Resources for Advancing the College Experience (TRACE). TRACE assists transfer students from underrepresented populations in making a smooth transition into UNC Charlotte by identifying campus resources, providing academic support, and acting as advocates. The TRACE program provides services related to orientation, retention, career advisement, academic advising, and learning assistance.

Bridge to the Doctorate (BTD). The Bridge to the Doctorate Program funded by a grant from the National Science Foundation, seeks to broaden the participation of underrepresented students in science, technology, engineering and mathematics (STEM). It provides tuition and fees, health insurance, and a stipend for a selected number of underrepresented students in STEM graduate programs. In addition, the program participants receive advising and mentoring from graduate faculty, opportunities

to conduct and present scholarly research, and attend professional meetings and workshops.

Office of Adult Students and Evening Services (OASES) serves as a liaison with academic departments, advising centers, and administrative offices. OASES offers extended hours to serve students from 8 a.m. to 7 p.m., Monday through Thursday (when classes are in session); 8 a.m. to 5 p.m. on Friday; and 9 a.m. to 1 p.m. on Saturday. OASES is closed on Saturdays during the summer. Services include general education advising, acceptance of tuition payments (no cash), and assistance with parking requests. Students can pick up and/or drop off information to be delivered the next day. Programs include re-entry open houses, orientations, adult student scholarships, the Alpha Sigma Lambda Honor Society, and the Non-Traditional Student Organization (NTSO). Visit www.uncc.edu/oases for more information.

Office of International Programs (OIP). The Office of International Programs serves as a focal point for UNC Charlotte's international dimension by providing leadership and assistance in the areas of curriculum development, international student/scholar services, education abroad, overseas linkages, English language training, cross-cultural training, and community programming.

International Admissions (IA). International Admissions is responsible for marketing UNC Charlotte to the world. The primary focus is the admission of students on non-immigrant visas. IA processes applications, evaluates credentials, makes admissions decisions, and serves as consultant to prospective students, academic advisors, sponsors, and agencies representing international students, departments, and the Graduate School. When students are admitted, IA provides documentation to the International Student Office for Immigration purposes.

Education Abroad. UNC Charlotte encourages its students to study and live abroad as a part of their academic careers. The Office of Education Abroad offers students the opportunity to study for a year, a semester, or a summer. Programs are available in countries virtually all over the world. Deadlines for application for fall semester or year-long programs are in January, deadlines for spring semester programs are in September or October, and deadlines for summer programs are generally in March or April. Contact the Office of Education Abroad for specific program information.

Faculty Development. The Office of International Programs serves as a facilitator for faculty exchange opportunities. Faculty are encouraged to work with the Director of International Programs in exploring and applying for a wide range of international exchanges. Among those are the Fulbright Exchange Program, reciprocal department exchanges, and exchanges based on agreements between UNC Charlotte and overseas institutions of higher learning. Faculty and administrators also are able to take advantage of OIP's professional development program. This program provides opportunities for the further enhancement of international interests through travel for international study and research and faculty colloquia on international topics.

International Student/Scholar Office provides services in the areas of immigration, campus and community orientation, and cultural adjustment. The staff serves as a

liaison to other campus offices on related matters and provides programs that enhance the student and scholar's learning experience including Conversation Partners, the Host Family Program, International Coffee Hour, advising of international student clubs, and cross-cultural training workshops.

Campus Programming. Various events are sponsored independently and in cooperation with other departments and agencies. They include the annual International Festival, dinners featuring specific cultures, the Education Abroad Fair, Summer Institutes, and the chapter office of Phi Beta Delta Honor Society for International Scholars.

The English Language Training Institute (ELTI) provides intensive English as a Second Language instruction for international students planning to attend American universities or colleges in the United States. ELTI holds three sessions per year--fall, spring, and summer--and offers up to seven language proficiency levels. Average class size is 12 students and students attend classes 20-24 hours per week. Exceptional students in Levels 6 and 7 are eligible to take University courses in addition to their English classes. ELTI also offers a communications course for international teaching assistants and consulting for international faculty at UNC Charlotte.

Public Service. The OIP seeks to initiate and respond to the international needs and interests of the community. Current programs include: (1) *Community Forums*--symposia on topics of current international interest; (2) *Great Decisions*--an annual series of lecture/discussions during the months of February and March on key policy issues; (3) *Cross-Cultural training*, individually designed workshops that focus on appreciation for other cultures and development of skills in effective communications across cultures; and (4) *Intercultural Outreach Programs* offers custom-designed, short term training programs for international groups. These programs may include English language training, American cultural themes, specialized professional development in any field, site visits and internships in the community, and a variety of cultural experiences tailored to meet the objectives of the group.

The University Career Center (UCC) offers comprehensive career services designed to assist undergraduate and graduate students in all stages of career development: career decision making, career planning, career employment, and reassessment. Experiential learning is a key component and all students are encouraged to take advantage of internship, cooperative education, 49ership, and other career exploration programs. With the UCC acting as a coordinating and academic support unit for experiential learning, over 64 percent of all students at UNC Charlotte participate in a University-sanctioned career-related experience.

The goals of the UCC are: (1) to help all students make and act on career decisions that maximize their potential and long-term development; to enable the timely involvement of students in experiential learning programs; (2) to engage students, faculty, and employers in quality experiential learning programs; and (3) to promote receptivity to and involvement with UNC Charlotte, the colleges, and the students among individuals and organizations outside the University. The UCC serves over 3,000 area and national employers, and also has developed co-op and 49ership

programs abroad. Over 10,000 jobs and internships are handled through the office each year.

Services provided by the UCC range from individual *career counseling and advising*, résumé and cover letter critiques, videotaped, mock interviews, to small group workshops on such topics as: résumé writing, effective interviewing, uncovering the hidden job market, and transitioning from college to the workplace. Other services include résumé referrals to employers, on-campus interviewing, career exploration through various experiential learning programs such as Discover and Career Prospector, a career resources library collection, and seven major job fairs annually. Students can participate in co-ops, internships, job shadowing opportunities, service learning opportunities, 49erships, and the UNC in Washington Semester Study and Intern Program, all of which are arranged through the UCC. The majority of services can be accessed via our web site (www.uncc.edu/career), through the “My Future” section on the 49er Express (www.express.uncc.edu) or by registering in Campus Professional, an online database maintained by the UCC. Online UCC links such as Career Search, Vault, and E-leads are added career information tools for students. The UCC staff also presents programs in classrooms, residence halls and student organization meetings. A newsletter is published each semester to inform students about workshops, programs, and employers recruiting on campus. Students are encouraged to visit the UCC and to start their experiential learning program and career planning in their freshman year or first semester at the University. The UCC has received national recognition for its “state-of-the-art” program initiatives.

Co-taught by Psychology professors and University Career Center counselors, a 3-credit course on Career Decisions and the World of Work helps students examine the working world in terms of labor trends, the global economy, cultures, and current work related societal issues. Students are guided through in depth processes and a model to examine where their skills, values, and abilities would best fit, given a better understanding of organizations and workplace expectations. Major theoretical foundations of career development (Super, Holland) and experiential learning (Dewey, Lewin, Argyvis, and Schon) and an emphasis upon engagement in EL programs are incorporated into this course. Assignments feature career research and culture analysis, personal assessments, written and oral communications, strategic development, and individual career action planning. Sophomores taking this course will be better prepared to maximize an experiential learning educational opportunity, make career decisions, understand work cultures they enter, and develop leadership and service skills.

Part-Time Employment Off-Campus. The UCC’s Job Location and Development (JLD) Program assists students in obtaining part-time, summer, and temporary employment off-campus. Some full-time jobs that do not require a degree are also listed. Job listings may be viewed online to registered students in Campus Professional.

Jobs may include career-related positions in various fields such as education, business, entertainment, engineering, graphic design, and healthcare. The JLD Program is available to help students to earn money for their academic and personal expenses during their enrollment at the University.

The Office of Student Success and Retention (OSSR) is a multi-function office that works across both Academic Affairs and Student Affairs. The office provides consulting, resource materials and other support services to assist in the development and implementation of programs/initiatives designed to enhance student success and retention. The office provides assistance in the development of assessment plans for student success and retention programs and works with the Associate Vice Chancellor for Student Affairs and the Director of Assessment to track and analyze campus-wide student success and retention data. The office promotes awareness about campus-wide student success and retention programs among current and prospective students, the campus community, and the region. Additionally, OSSR coordinates the Learning Community programs and the Freshman Seminar program.

The Office of the **Vice Chancellor for Research and Federal Relations** provides direction and leadership for the development of research and creative activity at the University and the infrastructure that supports those activities. The Vice Chancellor coordinates federal and congressional relations and oversees four support offices, the Office of Proposal Development, the Office of Research Services, the Office of Technology Transfer and the University Vivarium. The President of the Ben Craig Center also reports to the Vice Chancellor.

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 identification of funding sources, general consultation on writing and funding strategies, and proposal editing.

The **Office of Research Services (ORS)** provides services for the review and submission of proposals to funding agencies, including the interpretation of guidelines, preparation of budgets, and mailing and tracking of proposals, as well as post-award management support. ORS coordinates research-support efforts with college research officers and is responsible for federal compliance.

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; and acts as a conduit to industry for sponsored research and technology commercialization.

The Chimney Rock Park Field Station is located in the Blue Ridge Mountains, 30 miles southeast of Asheville. The University has an agreement with Chimney Rock Park to investigate the biological, geological and cultural features of the 800-acre park. Area available for study extends from the Broad River at the bottom of Hickory Nut Gorge to the top, a vertical climb of over 1,500 feet.

The UNC Charlotte Experimental Ecological Reserve is a 100-acre tract of land set aside on campus by the UNC Charlotte Board of Trustees as a permanent ecological reserve for use as an outdoor classroom and laboratory. The reserve includes a floodplain forest, pine stands, mixed pine-hardwood forest, and a relatively undisturbed 10-acre watershed of oak-hickory forest.

The UNC Charlotte Rocky River Wildlife Refuge is a 46-acre natural area located east of Charlotte in Stanly County. Its purpose is to preserve the natural features of the area and allow research and field trips to study the plants and animals within the North Carolina slate belt formation.

The UNC Charlotte Botanical Gardens, located on campus, consist of the McMillan Academic Greenhouse, the Van Landingham Rhododendron Glen, and the Susie Harwood Ornamentals Garden. Begun in 1966, these gardens combine indoor and outdoor facilities for teaching, research and public display of a wide variety of native and exotic plants. The outdoor gardens are open seven days a week, and the greenhouses are open Monday through Saturday. Students and the public are invited to visit, free of charge. More information can be found online at <http://gardens.uncc.edu>.

STUDENT AFFAIRS AND SERVICES

The University of North Carolina at Charlotte provides a comfortable and enjoyable environment for students that is conducive to study. 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.

The Bonnie E. Cone University Center serves as the hub of activity for informal gatherings, social and co-educational activities on campus and provides an attractive, comfortable place for relaxation and study. A variety of activities, including concerts, movies, lectures, and banquets, are offered to students and the campus community. Services and facilities include several meeting rooms and multi-purpose spaces, art galleries, the information desk and music listening/TV lounge, the Candy Shoppe, Creation Station (signs, banners, balloons, etc.), Campus Event Information Office, Technical Services, and Conferences/Reservations & Events Services.

Student service offices in the Center include: The Office of Student Activities, Center For Leadership Development, Multicultural Resource Center, Campus Activities Board, Student Government Association, Student Media, Student Organization Offices/Mailboxes, and the Student Activity Fees Commission. We also house the Black Student Union, Resident Student Association, and Graduate/Professional Student Government.

Additional services include the I.D. Office, *Main Street Market* Food Court, ATM machines, computing stations, wireless network access, and warm, comfortable lounge spaces. Please stop by the Cone Center Administrative Offices in the 380 Suite for more information or to get involved with our programs.

The I.D. Office is co-located with the Dining Services Office adjacent to the *Main Street Market* Food Court in

Cone University Center. It is open from 8 a.m. to 5 p.m., Monday through Friday.

After Hours (Cone Center) and **The Rathskeller** (Residence Hall Cafeteria) can be reserved for dances and other events. The Campus Activities Board (CAB) and Campus Programs offer a wide variety of entertainment, including name musical and novelty acts, lectures, movies, minority programs, women's programs, and children's programs.

The Bookstore offers new and used textbooks, non-required special interest and gift books, school supplies, computer software, greeting cards, gifts, and insignia clothing items. Services include "pre-packs of textbooks" specially designed for freshmen and special ordering of books not carried in stock.

University residence halls, suites, and apartments offer students a variety of living arrangements.

Four high-rise residence 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. 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 service contract is required in the high-rise residence halls.

In the majority of suite housing, two students share a double room and four students share a bath and a den area. A very limited number of suites are available in Squires Hall that house either two or four students but all in private bedrooms. Cypress Hall for freshmen students in Learning Communities houses four students in either single or double bedrooms. All buildings housing the suite lifestyle also require a meal service contract, except Squires Hall.

On-campus apartments offer students a more private living environment and require a more self-reliant lifestyle. Each apartment is a four-bedroom unit, with one student assigned to each bedroom. The four students share a bathroom area and kitchen complete with appliances and a living/dining space. A meal plan is optional, allowing students the experience of buying and preparing their own food, if they so desire.

For information about summer housing, contact the Housing and Residence Life Office.

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 application, lifestyle preferences, roommate requests, space availability, class year, and building/room preferences. Application for housing may be made on-line at www.uncc.edu/housing following the student's admission to the University. A \$100 deposit is required with the application.

Housing facilities designed specifically for students in wheelchairs are available. Wheelchair students 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. Wheelchair students may be considered for priority status on the waiting list on the basis of (1) the date of 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 Disability Services Office. 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.

Dining Services. Students living in Sanford, Moore, Holshouser, Scott, Hawthorn, Hickory, Cedar, Sycamore, Oak, Cypress, and Witherspoon Suites **must** have a dining service contract. Freshmen may choose from one of several Traditional Meal Plans especially designed to meet their needs. Upper-classmen living in Sanford, Moore, Holshouser, Scott, Hawthorn, Hickory, Cedar, Sycamore, Oak, Cypress, and Witherspoon Suites may select any of the Traditional Meal Plans or Declining Balance Meal Plans designed for students living in these areas. Traditional Meal Plan meals, lunch and dinner, are offered in the Resident Dining Hall (RDH) or the Crossroads Café. Declining balance plans can be used as cash at any dining services facility on campus.

A current list of meal plan options may be obtained from the Dining Services Office (Cone Center) or the Meal Plans, 49er Card, and Insurance Office located in the Auxiliary Services Building. Information can also be found online at www.auxiliary.uncc.edu.

During the period of occupancy, UNC Charlotte will provide meals according to the plan selected, with **the exception of no meals being provided during fall break, Thanksgiving break, winter break, and spring break.**

Dining service contracts are binding for one semester. Cancellations can be made only under special circumstances (e.g., withdrawal from the University or moving to an on-campus apartment) and only upon the approval of the Office of Meal Plans, 49er Card, and Insurance. Students may make meal plan changes during the registration period, which lasts through the first day of classes. The first change will be at no charge, however an administrative charge of \$25 will be assessed for each subsequent change. Students living in required areas, Sanford, Moore, Holshouser, Scott, Hawthorn, Hickory, Cedar, Sycamore, Oak, Cypress, and Witherspoon Suites, may make changes again during the two days of housing room change on a pro-rata basis. **No other changes may be made after this time, unless the student moves from required housing.** Students living in apartments and off-campus may make changes and cancellations on a pro-rata basis until fall/spring breaks. **NO CHANGES OR CANCELLATIONS MAY BE MADE AFTER FALL/SPRING BREAKS.** (Exceptions must be approved by the Dining Services Administrator.) All changes and cancellations must be made in the Meal Plans,

49er Card and Insurance Office, 148 Auxiliary Services Building.

Resident students in apartments and commuter students may purchase any of the Traditional or Declining Balance Meal Plans. Students may also elect to purchase Optional Dining Account in the Dining Services/ID Office, located in the Cone University Center, or in the Meal Plans, 49er Card and Insurance Office, located in the Auxiliary Services Building, by using credit cards, checks or cash.

Anyone may purchase individual meals at either of the boarding cafeterias (RDH and Crossroads Café) using cash, Declining Balance, Optional Dining Account, or 49er Account. Vending machines are located throughout the campus and several locations have microwave ovens for heating items. Students applying for on-campus housing may also apply for their meal plan at the Housing web site: www.housing.uncc.edu/assignments.

The Counseling Center at UNC Charlotte supports the academic, career, 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. In addition, the Center promotes a healthy university community by offering short-term consultation with faculty and staff for personal and work-related issues. 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.

Initial counseling appointments may be arranged in Room 158 of the Atkins Building or by calling the Center at 704-687-2105. Information between student clients and counselors is confidential in accordance with guidelines established by the American Psychological Association and the laws of the state of North Carolina. 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. These services may consist of individual or group counseling at the Counseling Center or a referral to an on-campus or off-campus service.

Counseling is provided to help a person cope with difficult situations and conflicts; improve interpersonal relationships; adjust to college and other life transitions; and overcome specific psychological difficulties such as depression, anxiety, eating disorders, and substance abuse. Groups are offered each semester, some of which are short-term structured groups that address a particular theme (such as anxiety reduction). Other groups are on-going and unstructured.

Outreach and consultation are important services provided by the Counseling Center. Staff members are available to consult with faculty, staff, parents, and students on topics such as enhancing communication, improving the learning environment, and helping a particular student with a problem. 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 group or organization.

More information about the Counseling Center and its services can be obtained by visiting the web site at

<http://www.counselingcenter.uncc.edu> or by calling 704-687-2105.

Student Health Services 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 registered UNC Charlotte students. Student Health Services is staffed by a team of physicians, physician assistants, nurse practitioners, registered nurses, pharmacists, physical therapists, radiology technologists, medical lab technicians, health educators, and certified substance abuse counselors, and is accredited by the Joint Commission on Accreditation of Healthcare Organizations.

Services are available as follows:

- Fall & Spring Semesters: Monday-Thursday 8:00 am to 8:00 pm, Fridays 8:00 am to 5:00 pm.
- Summer and Intersession: Monday-Friday 8:00 am to 5:00 pm.
- The center operates scheduled hours according to the University holiday and hazardous weather policies.

Appointments are recommended; this eliminates long waits and assists students in scheduling medical services around class schedules.

Seriously ill students and emergencies are referred to local hospitals or other appropriate medical facilities.

Beginning Fall Semester 2005, all students are required to either demonstrate proof of insurance or to purchase a Student Health Insurance Plan through UNC Charlotte Student Health Services. Full details may be found at www.uncc.edu/health_svcs.

—The student health fee covers most of the cost for services; however, additional fees are charged for x-ray, pharmacy, laboratory, and gynecology services. Fees for service may be paid by cash, check or transferred to the student's University account. Fees are subject to change. For more information, visit www.uncc.edu/health_svcs or call (704) 687-4617.

The Student Employment Office (200-A King Building) assists students in locating on-campus employment opportunities. The University participates in the federal Work-Study Program and attempts to match students with jobs related to their academic interests. Students are encouraged to limit employment to no more than 20 hours per week to allow for success in a full 15-18 hour course load each semester.

OUTREACH: THE UNIVERSITY AND THE COMMUNITY

The University 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 significant impact on the region through research, historic preservation, planning, the arts and literature, and the delivery of government and social services.

The Office of Alumni Affairs, located in the Alumni House on Highway 49, serves as the liaison between the University and all graduates. The Associate Vice Chancellor for Alumni Affairs is the chief administrative officer, coordinating activities of the Office of Alumni Affairs and carrying out the objectives, goals, and policies of the Alumni Association.

The Alumni Association's primary purpose is to involve alumni in the promotion, advancement, and support of the mission of UNC Charlotte and to develop and stimulate a continuing interest in our *Alma Mater* by providing opportunities for service, fellowship, and loyalty. A 32-member Board of Governors, elected by the active membership, establishes policy of the Alumni Association and assists in the planning and implementation of projects, events, and programs. Active members of the association are those alumni who contribute to the University or the UNC Charlotte Foundation.

Programs of the Alumni Association include the Alumni Awards Banquet, regional, local, special interest and collegiate chapters, homecoming activities, networking socials, public affairs events, reunions, merchandising opportunities, group travel, athletic support, recognition of outstanding seniors, and sponsorship of the Student Alumni Ambassadors.

The Alumni Office seeks to maintain lifelong contact with all graduates. Graduates are encouraged to become active in the Alumni Association and to notify the Alumni Affairs Office of address changes, employment information, and other significant events, such as marriages, births and Honors. In this way, adequate records can be maintained, and the Alumni Affairs Office can publish news about graduates in the *University Magazine*. The address is Alumni Affairs Office, Alumni House, UNC Charlotte, 9201 University City Blvd, Charlotte, NC 28223; telephone 704-687-2273 or, for those outside Mecklenburg County, 1-800-PIK-UNCC; fax 704-687-3962; email alumni@email.uncc.edu; web page www.uncc49er.net. A new Alumni Center is in the process of being built on Toby Creek Road. The Alumni Center will house the Office of Alumni Affairs, the Alumni Association, and provide meeting and event space to Alumni, faculty, staff, and students of the University in the near future.

The Ben Craig Center, located in the University Research Park, is a non-profit incubator associated with UNC Charlotte. Its mission is to foster entrepreneurship in the Charlotte region. The Center accomplishes its mission by combining office infrastructure, consulting services, and a network of business contacts to create a program that accelerates a business' growth.

The Office of Continuing Education, Distance Education/Extension, and Summer 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.

Non-credit short courses, seminars, workshops, and conferences for adults are offered through *Continuing Education*. Specific programs are provided each year for the continuing professional education of accountants, architects,

managers in the public and private sectors, engineers, psychotherapists and counselors, teachers and other school personnel, and information specialists. UNC Charlotte also offers special lectures and forums in the arts, sciences, humanities, and public policy for the personal enrichment of all interested citizens.

Through *Distance Education/Extension*, courses for academic credit are offered at off-campus sites to serve citizens who live beyond easy commuting distance from the campus. Options for delivery include sending a UNC Charlotte faculty member to an off-campus location to teach a course in person, using one of two state-wide interactive video networks to link a UNC Charlotte faculty member on the campus in Charlotte with students attending class at remote locations throughout the state, and transmitting instruction via the Internet. In addition, the University has the ability to deliver educational programming over Cable Channel 22, which is the channel reserved for the University by the local cable service.

During the summer, the office schedules a variety of credit and non-credit programs, including academic enrichment camps for youth, on the campus and at approved off-campus sites.

Contact the Office of Continuing Education, Distance Education/Extension, and Summer Programs at 704-687-2424 or visit their website online at www.ceesp.uncc.edu for specific information about the programs offered.

The Office of University Development. Known traditionally as a "state-supported institution," UNC Charlotte is more accurately a "state-assisted institution," as the University depends on non-state resources for more than half of its operating needs. Philanthropy is critically important, providing the critical margin of excellence so that the University can fulfill its threefold mission of education, research and public service.

The Office of University Development plans and implements the private fund-raising 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 and campus-wide development services. The Office of University Development is led by Laura C. Simic, CFRE, Associate Vice Chancellor for Development.

The Foundation of The University of North Carolina at Charlotte, Inc. is a 501(c)(3) public charity, incorporated in 1965 to benefit UNC Charlotte through asset management and fund raising. University employees perform the fund-raising and business functions of the Foundation. In exchange, the Foundation transfers funds to UNC Charlotte to enhance its teaching, research and service missions.

The Office of Public Relations, located in the Reese Building, is the official communications channel through which the University disseminates information to its various publics. The Office has three major functions: (1) external media relations; (2) internal communications; and (3) official University publications that are distributed to off-campus audiences. The Office works with media outlets throughout the country on news and feature coverage about University programs and its people. Additionally, the staff writes and

distributes tip sheets and news releases about campus activities, as well as faculty and student achievements. The Office produces a weekly newsletter, *Campus News*, to inform faculty and staff about campus activities; publishes the official university magazine, which is distributed to alumni and friends of UNC Charlotte; and provides editing and design assistance in printing official publications for University departments. The Office of Public Relations is led by Anthony T. Hoppa, APR, Associate Vice Chancellor for University Relations.

The UNC Charlotte Urban Institute develops and supports programs that give impetus to the University's urban mission. The Institute is a catalyst for projects designed to meet the applied research needs of urban and developing areas of the Charlotte Metropolitan region. It also provides administrative and technical support to organizations involved with issues of an urbanizing society. Projects are initiated by members of the faculty, community clients or the Institute staff and focus on a broad spectrum of urban topics (e.g., local government, the environment, land use, business assistance and economic development.) Students may become involved in Institute projects as part-time research assistants or interviewers, or they may become involved with the Institute in conjunction with course work or degree requirements by writing term papers, graduate theses, or completing internships. Following are the Institute's areas of program:

Open Space Institute of the Carolinas is a membership organization open to agencies and individuals who have an interest in the conservation of land in the central piedmont region of the Carolinas. The program maintains an information base of conservation initiatives in the region and implements research and educational activities relating to broadening the community's understanding of the importance of conservation efforts.

Community Research and Service conducts needs assessments and public opinion surveys of both target and general populations focusing on issues of concern to local, regional, and national clients. The program also provides support to government and community agencies in the planning and implementation of special projects and strategic planning activities.

Land Use and Environmental Planning conducts research for and provides planning services to county and municipal governments and to businesses and non-profit organizations in the central piedmont region of the Carolinas. LUEP operates the Open Space Institute, which works collaboratively with regional land conservation organizations to define and achieve a shared regional open space vision, through education, research and planning. This division maintains and provides access to a rich set of regional information resources in support of land use, open space and environmental planning.

Evaluation Research provides research and evaluation services focusing on human service programs. Impartial, third-party program evaluation is provided to decision makers in government and private organizations for use in responsible financial management and long-term decision making regarding program policy and funding issues.

Technology Services and Training is a division specializing in the application of computer technology to develop high-payoff solutions for public-sector clients. A

major on-going project involves providing software support and training for a statewide computerized school bus routing project called Transportation Information Management Systems (TIMS). Other projects include: database design and desktop mapping, projects for economic development, social service agencies, and healthcare providers, conference planning and hosting, and redistricting for school systems.

The Center for Professional and Applied Ethics offers ethics-related services to professionals who express a need for ethics consultations or education; serves as a focus point where University students can examine the ethical issues embedded in the professions for which they are being trained; and helps develop ethics-related curricular initiatives and research collaborations among interested faculty members. It has 29 Center Faculty Associates who represent the University's major colleges and professional schools and 27 off-campus Advisors who assist with its mission. The Center routinely organizes ethics-related conferences, workshops, and seminars on and off campus.

The Center for Mathematics, Science, and Technology Education works closely with the 10 regional school districts, their administrators, and teachers to provide professional development activities in the content areas of mathematics and science for K-12 teachers and in updating and enhancing their methodologies of teaching mathematics and science.

The Charlotte Research Institute (CRI) was conceived as a partnership between UNC Charlotte and the corporate and entrepreneurial communities of the region. Ultimately to be housed in 1.2M square feet with one-third of the space currently under construction on 100 acres of the campus, the CRI exists to facilitate collaborative research and to build intellectual capital. The CRI is committed to the development of intellectual capital through global collaborations with industry, government, and academia. The CRI seeks to develop technology-based academic and business partnerships, ranging from consultation to onsite collaborative research. These efforts will attract expertise and resources to the region resulting in the creation of a top-tier interdisciplinary technology research community. Important products of this endeavor include regional cooperation, entrepreneurship, and economic development. The Institute's support of education and research includes its three centers: eBusiness, Optoelectronics and Optical Communications, and Precision Metrology.

The Center for eBusiness Technology is currently focused on the financial industry. The Center is partnering with the Bank of America and Wachovia to solve industry issues pertaining to technology applications. These applications include: information privacy and security, intelligent data analysis, systems integration, information visualization, and is expanding into research in Bioinformatics and Homeland Security. It has the distinction of being a "National Security Agency Center for Information Assurance Education." The Center for eBusiness Technology receives research funding from federal, corporate, and private grants.

The Center for Optoelectronics and Optical Communications includes research areas in: design and fabrication of photonic devices, integrated optical circuitry, assembly and packaging of optical systems, optical materials, methods for precision optical metrology, and optical imaging and inverse methods for wavefront 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 won Defense Advancement Research Projects Agency (DARPA) grants for the past three years.

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 will include clean rooms and multiple metrology labs. Efforts have included high-speed machine parts, specialized sensors, aerospace industry applications, and have attracted companies such as Caterpillar, Mitutoyo, and Boeing for collaboration. The center also includes a group focused on motorsports and automotive research with collaborative partnerships with area race teams and NASCAR. The Center has been recognized as a National Science Foundation Center of Excellence in New Industry Collaboration and in Nanoscale Science and Engineering.

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 University has also enacted a program for the prevention of the use of illegal drugs and alcohol abuse. All UNC Charlotte students are obligated to be familiar with these codes and to conduct themselves in accordance with the standards set forth.

THE UNC CHARLOTTE 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 that *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.
- 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.

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 The UNC Charlotte Code of Student Academic Integrity. This *Code* may be modified from time to time. Students are advised to contact the Office of the Dean of Students or go to

www.legal.uncc.edu/policies/ps-105.html to ensure they consult the most recent edition.

THE UNC CHARLOTTE CODE OF STUDENT RESPONSIBILITY

Conduct Rules and Regulations

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

- A.** (1) Inflicting physical injury upon a person; (2) placing a person in fear of or at risk of imminent physical injury or danger; (3) committing sexual invasion, sexual assault, sexual misconduct, or sexual harassment as defined herein; (4) inflicting severe mental or emotional distress upon a person through a course of conduct involving repeated abuse or disparagement; (5) engaging in "fighting words" harassment as that term is defined in Policy Statement #95. The full text of this policy is available online or in the Office of the Dean of Students.
- B.** Using, possessing, or storing any weapon, dangerous chemical, or explosive without authorization.
- 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 Statement #58, "Interference with University Operations," which prohibits student action taken "with intent to obstruct or disrupt any normal operation or function of the University," and Policy Statement #96, "Conduct at Speech Events," which prohibits certain disruptive activities at speech events on campus. Full texts of both policies are available online or in the Office of the Dean of Students.
- E.** Knowingly violating the terms of any disciplinary sanction imposed in accordance with this Code.
- F.** Possessing any controlled substance or drug paraphernalia, or manufacturing, selling or delivering any controlled substance or possessing with intent to manufacture, sell or deliver, any controlled substance. Minimum penalties and certain other requirements apply where controlled substance offenses are at issue, pursuant to University Policy Statement #87, "Program to Prevent Use of Illegal Drugs and Alcohol Abuse." That policy is available online or in the Office of the Dean of Students.

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- G. Setting fires, or misusing or damaging fire safety equipment or elevators.
- H. Furnishing false information to the University; 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.
- I. Forgery, unauthorized alteration, or unauthorized use or misuse of any document or instrument of identification (ID); displaying or using an ID that is not one's own or is fictitious, canceled, revoked, suspended, or altered; counterfeiting, loaning, or selling an ID to another person not entitled thereto.
- K. Theft or attempted theft of property or services; the unauthorized use or access to private or confidential information in any medium; possessing stolen property; or possessing property that is not your own without owner authorization.
- L. Destroying or damaging the property of others or University property.
- M. Failing to comply with the reasonable directions of University officials, including but not limited to campus police officers or Residence Life Staff, acting in performance of their duties.
- N. Violating published University regulations or policies, as approved by the Vice Chancellor for Student Affairs. Such regulations or policies include but are not limited to the residence hall contract, as well as regulations relating to entry and use of University facilities, use of vehicles and amplifying equipment, campus demonstrations, and misuse of identification cards.
- O. Possessing, consuming, or distributing alcoholic beverages without University authorization including, but not limited to: operating a motor vehicle under the influence of alcohol or while impaired by the consumption of alcohol; possessing or consuming alcoholic beverages by students below the legal minimum age; displaying or consumption of alcoholic beverages in campus residences by students less than twenty-one years of age; furnishing or selling any alcoholic beverages to any person not of sufficient legal age to possess or consume such alcoholic beverage; failing to abide by the provisions of an "Acknowledgment of Responsibility for Service of Alcoholic Beverages" form; or making any sale of any alcoholic beverage on the University campus. (The full text of University Policy Statement #57, "Alcoholic Beverages," is available online or in the Office of the Dean of Students.)
- Q. Being present in or using University premises, facilities, or property without University authorization.
- R. Using or possessing fireworks on University premises or at University activities without University authorization.
- S. Engaging in disorderly conduct that disrupts or interferes with the normal functions of a class, or engaging in disorderly conduct such as fighting, threatening behavior, public disturbance, or drunk and disorderly conduct.
- T. Causing or permitting a person, in relation to membership in a society, club or similar organized group (whether or not recognized by the University), to participate in any activity that subjects that person or others to unnecessary risks of physical injury or extreme mental distress, whether or not such person has consented to participation in the activity. The full text of University Policy Statement #83, "Hazing," is available online or in the Office of the Dean of Students.
- V. Engaging in computer abuse, including but not limited to: unauthorized use of or tampering with the operation of any University computer system including hardware and software; inspecting, modifying, or copying programs or data in University owned or controlled computing facilities without authorization or for purposes other than that for which authorization was given; disrupting or interfering with legitimate use of University computing systems by authorized users; using or copying any University software except as permitted under license; using University computing facilities to use or copy any software except as permitted under license; use of computers in University computer labs that is not related to UNC Charlotte course- and degree-related work; or violating University Policies # 66, 67, 10, 20, and 8 on computer and software use. (The full text of University Policy Statements #66, "Responsible Use of University Computing and Electronic Communication Resources," #67, "Proprietary Software," #10, Network Security, #20, Electronic Communication Systems, or #8, World Wide Web, are available online or in the Office of the Dean of Students.)
- W. Gambling for money or other things of value except as allowed by law. Prohibited gambling includes, but is not limited to, betting on, wagering on, or selling pools on any University athletic event; possessing any card, book, or other device for registering bets, or bookmaking in connection with betting.

A full explanation of prohibited conduct, and a description of procedures used in cases where student violations are alleged, is found in the complete text of The UNC Charlotte Code of Student Responsibility. This *Code* may be modified from time to time. Students are advised to contact the Office of the Dean of Students or go to www.legal.uncc.edu/policies/ps-104.html to ensure they consult the most recent edition.

PROGRAM TO PREVENT USE OF ILLEGAL DRUGS AND ALCOHOL ABUSE (POLICY #87)

General. 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.

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 with alcohol alone.
- 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.
- The effective use of available campus and community resources in dealing with illegal drug abuse and alcohol abuse problems.

Responsibilities: It is the responsibility of all students, faculty, and staff to conduct themselves in such a way as to contribute to an environment free of illegal drug use and abuse of alcohol. Also students, faculty, and staff are responsible, as citizens, for knowing about and complying with the provisions of North Carolina law that make it a crime to possess, sell, deliver, or manufacture those drugs designated collectively as "controlled substances" in Article 5 of Chapter 90 of the North Carolina General Statutes.

The Health Educator is responsible for designing and carrying out a program of awareness education and training for students on the subject of preventing the illegal use of drugs and abuse of alcohol. The Assistant Director of Personnel for Training and Employee Relations is responsible for awareness education and training programs for faculty and staff members in supervisory positions on the subject of preventing substance abuse.

The Director of the Counseling Center shall, within the limits of available resources, provide services and programs to students, faculty, and staff seeking assistance with problems of illegal drug use or alcohol abuse. Counseling Center services to faculty and staff are available under the University's Employee Assistance Program (EAP). In cases where the treatment needs of such students, faculty, and staff exceed the resources of the Center, the Center shall provide referral to appropriate facilities in the community.

Collaboration with Community Resources. The University's program emphasizes collaboration with local resources such as the Charlotte Drug Education Center, 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 Mecklenburg Coalition on Substance Abuse and will work with local advisory boards to further collaborate between the University and the Charlotte Community.

Education and Prevention Activities. The University's institution-wide 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 responsibly, and (3) to encourage users of illegal drugs to stop.

Illegal Use of Drugs and Abuse of Alcohol. 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 mentioned 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 processes should a student, faculty member, or staff member violate criminal statutes with regard to illegal drugs. Violations 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. Employees convicted of any criminal drug offense occurring in the workplace must notify the University by informing the appropriate Vice Chancellor's office no later than five (5) days after conviction. Disciplinary action and/or participation in a drug rehabilitation/education program as a result of campus proceedings must commence within 30 days of notice of conviction.

Disciplinary procedural safeguards applicable to one's status as a member of the University community will be followed. These are described in the following documents:

Status	Document
Students	<i>UNC Charlotte Code of Student Responsibility</i>
SPA Staff	<i>State Personnel Manual</i>
EPA Staff	<i>EPA Non-Faculty Personnel Policy</i>
Faculty	<i>Section 603 of the UNC Code and Section 8 of UNC Charlotte Tenure Document</i>

Minimum sanctions described below in the Policy would also apply to employees who do not fall in any of the categories above. In the event a student is also an employee of the University, the minimum sanctions for employment as well as student status would apply.

The use of illegal drugs may lead to a variety of sanctions, from written warnings with probationary status to expulsion from enrollment or discharge from employment. However, in accordance with the Policy on Illegal Drugs adopted by the Board of Governors from the University of North Carolina, the following minimum penalties shall be imposed for the particular offenses described.

Trafficking in Illegal Drugs

1. For the illegal manufacture, sale, or delivery, or possession with intent to manufacture, sell, or deliver, of any controlled substance, identified in Schedule I, N.C. General Statutes 90-89, or Schedule II, N.C. General Statutes 90-90 (including, but not limited to, heroin, mescaline, lysergic acid diethylamide, opium, cocaine, amphetamine, and methaqualine), any student

shall be expelled and any faculty member or staff member shall be discharged.

2. For a first offense involving the illegal manufacture, sale, or delivery, or possession with intent to manufacture, sell, or deliver, of any controlled substance identified in Schedules III through VI; N.C. General Statutes 90-91 through 90-94, (including, but not limited to, marijuana, pentobarbital, and codeine) the minimum penalty shall be suspension from enrollment or from employment for a period of at least one semester or its equivalent. For a second offense, any student shall be expelled and any faculty member or staff member shall be discharged.

Illegal Possession of Drugs

1. For a first offense involving the illegal possession of any controlled substance identified in Schedule I, N.C. General Statutes 90-89, or Schedule II, N.C. General Statutes 90-90, the minimum penalty shall be suspension from enrollment or from employment for a period of at least one semester or its equivalent.
2. For a first offense involving the illegal possession of controlled substance identified in Schedule III through VI, N.C. General Statutes 90-91 through 90-94, the minimum penalty shall be probation, for a period to be determined on a case-by-case basis. A person on probation must agree to participate in a drug education and counseling program, consent to regular drug testing, and accept such other conditions and restrictions, including a program of community service, as the Chancellor or the Chancellor's designee deems appropriate. Refusal or failure to abide by the terms of probation shall result in suspension from enrollment or from employment for any unexpired balance of the prescribed period of probation.
3. For second or other subsequent offenses involving the illegal possession of controlled substances, progressively more severe penalties shall be imposed, including expulsion of students and discharge of faculty members or staff members.

Suspension for a Minimum Period of "One Semester or its Equivalent." This logically may be interpreted to mean, in the case of a student, forfeiture of at least one full semester of academic credit or attendance; this may be accomplished either (1) by suspending the student for the unexpired balance or the semester during which guilt is determined, with attendant loss of all academic credit for that semester, or (2) by placing the student on probation for the unexpired balance of the semester during which guilt is determined and suspending the student for the duration of the next succeeding semester; in the case of a faculty member or staff member, it may be interpreted to mean forfeiture of pay for a period of 18 weeks. Since the current State Personnel Act specifies that disciplinary suspensions cannot exceed three days, offenses for which an eighteen-week minimum suspension is required by the Board of Governor's policy will result in discharge of an employee subject to the State Personnel Act.

Suspension Pending Final Disposition. When a student, faculty member, or staff member has been charged

by the University with a violation of policies concerning illegal drugs, he or she may be suspended from enrollment or employment before initiation or completion of regular disciplinary proceedings if, assuming the truth of the charges, the Chancellor or, in the Chancellor's absence, the Chancellor's designee concludes that the person's continued presence within the University community would constitute a clear and immediate danger to the health or welfare or other members of the University community; provided, that if such a suspension is imposed, an appropriate hearing of the charges against the suspended person shall be held as promptly as possible thereafter.

References. The use of alcoholic beverages on the University campus is regulated by Policy Statement #57, "Policy on Alcoholic Beverages." Policy Statement #62, "Employee Assistance Program," establishes a free employee assistance service as part of the University Counseling Center.

IMMUNIZATION REQUIREMENTS

North Carolina state law requires proof of immunizations to protect you and others while you are in attendance. Under North Carolina regulations, a student must be dropped from classes if the immunization requirements are not met within thirty days of the start of classes. An *Immunizations Form* is available to download online at www.uncc.edu/health_svcs. It is permissible to attach official copies (i.e., signed or stamped by a physician, health department, etc.) of any records that verify your immunizations. You may obtain any needed immunizations from your private physician, local health department, or UNC Charlotte's Student Health Services.

NOTES: A physical is not required for admission, only documentation of required immunizations. Also, immunization records, including those attached to high school or other transcripts, which are mailed to other offices on campus, are not transferred to Student Health Services.

The following students are exempt from these requirements: (1) Students who attend classes only in the evening (i.e., after 3:30 p.m.); (2) Students who attend classes off campus only; and (3) Students who enroll in no more than four hours per semester. Medical and religious exemptions can be requested through Student Health Services.

Be sure to include your name, student identification number, and date of birth on each page. Questions and forms should be directed to:

UNC Charlotte Student Health Service
Attn: Immunizations
9201 University City Blvd
Charlotte, NC 28223

A letter indicating your compliance or additional immunization requirements will be sent to you upon receipt of your records.

IMMUNIZATION REQUIREMENTS

A. For students 17 years of age and younger

- 3 DTP (Diphtheria, Tetanus, Pertussis) or 3 Td (Tetanus-diphtheria) doses; one dose must be within the last ten years.
- 3 Polio (*oral*) doses.
- 2* MEASLES (*Rubella*) doses on or after the first birthday.
- 1** RUBELLA dose on or after first birthday.
- 1 MUMPS dose on or after first birthday.

B. For students born after December 31, 1956, to 18 years of age

- 3 DTP or 3 Td doses; one dose must be within the last ten years.
- 2* MEASLES (*Rubella*) doses on or after the first birthday.
- 1** RUBELLA dose on or after first birthday.
- 1 MUMPS dose on or after first birthday.

C. For students born prior to January 1, 1957, through age 49

Primary series of 3 DTP or 3 Td doses; one dose must be within the last ten years.

A documented Td BOOSTER within the past ten years will be accepted as evidence of the initial series.

- 1** RUBELLA dose.

D. For students 50 years of age and older

Primary series of 3 DTP or 3 Td doses; one dose must be within the last ten years.

A documented Td BOOSTER within the past ten years will be accepted as evidence of the initial series.

E. For all International Students

Tuberculin Skin Test (PPD) within the 12 months preceding classes.

Chest x-ray if test is positive.

* History of physician-diagnosed measles disease OR laboratory proof of immunity is acceptable. Must repeat measles vaccine if received even one day prior to first birthday.

** ONLY laboratory proof of immunity to rubella is acceptable; physician-diagnosed rubella disease is not acceptable.

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