

2011-2012

CATALOGUE

WESTERN NEW ENGLAND UNIVERSITY

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In its annual “America’s Best Colleges” edition, *U.S. News & World Report* ranks Western New England University in the top tier of the “Regional Universities—North” category of colleges and universities offering a full range of undergraduate and master’s programs.

In addition, the University is also featured in *Colleges of Distinction*, a college guide and website profiling institutions characterized as America’s best values in higher education.

The official 2011-2012 Western New England University Catalogue is online at www.wne.edu/catalogue.

The following sections can only be found online:

- Undergraduate course descriptions
- Graduate course descriptions
- Scholarship information
- Legal matters
- Directories



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Western New England University retains the right to change and/or amend the academic requirements as set forth in this Catalogue as needs and circumstances require. Accommodations will be made for current students should they be adversely affected by amendments to or changes in the curricula or policies of the University.

Nondiscrimination Policy

Western New England University is committed to the principle of equal opportunity in education and employment. The University does not discriminate on the basis of sex, race, color, creed, national origin, age, religion, sexual orientation, gender identity, gender expression, veteran status, or disability in admission to, access to, treatment in, or employment in its programs and activities. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Executive Director of Human Resources, Western New England University, 1215 Wilbraham Road, Springfield, MA 01119-2684. Inquiries concerning the application of nondiscrimination policies may also be referred to the Regional Director, Office for Civil Rights, U. S. Department of Education, J. W. McCormack P.O.C.H., Room 222, Boston, MA 02109-4557.





A Message from the President

This publication conveys a rich and powerful portrait of a special institution that provides outstanding educational opportunities for all students. The Colleges of Arts and Sciences, Business, and Engineering offer dynamic undergraduate and graduate programs of study, with faculty who are experts in their fields and who are skilled teachers. The reputation of the Western New England University School of Law too is firmly established, and the emerging College of Pharmacy will significantly enhance the University's reputation in the years to come. Western New England University has prepared 40,500 students through their education to enter the world of work as responsible citizens—adaptable, entrepreneurial, and creative.

Western New England University is about more than its educational offerings; it is as much about individuals at the University who help students grow and thrive in our special environment. In support of every program and each activity there are faculty, staff, and administrators who bring life and vitality to all that is undertaken here. Our strength resides in our faculty, staff, and students, and in our rich educational programs. We are unique because of our history, traditions, and values, and because of our commitment to students on the part of all of us at this University.

I extend a special greeting to all who peruse this publication wanting to learn more about Western New England University and to our students utilizing these pages in order to plan programs of study.

A handwritten signature in black ink that reads "Anthony Caprio". The signature is written in a cursive, flowing style.

Anthony S. Caprio

ABOUT WESTERN NEW ENGLAND UNIVERSITY

The University

Western New England University is a private, comprehensive, coeducational institution located on a 215-acre campus in a suburban neighborhood four miles from downtown Springfield. Originally founded in 1919 as the Springfield Division of Northeastern University, it became established with its own charter and identity as Western New England College in 1951. Building of the current campus began in 1958. In 2011, the name was changed to Western New England University.

Programs, Colleges, Faculty, and Students

Western New England University offers a wide range of undergraduate degree programs as well as graduate and doctoral programs in Arts and Sciences, Business, Engineering, Law, and Pharmacy. There are 194 full-time faculty members in the University's five colleges and school.

The University serves 3,650 students: 2,470 full-time undergraduates, 630 in full- and part-time J.D. and LL.M. programs in the School of Law, and approximately 550 in part-time undergraduate, graduate, and doctoral degree programs. The University attracts students from 39 states and several foreign countries. There are 40,505 alumni of the University.

Our Mission

The hallmark of the Western New England experience is an unwavering focus on and attention to each student's academic and personal development, including learning outside the classroom. Faculty, dedicated to excellence in teaching and research, and often nationally recognized in their fields, teach in an environment of warmth and personal concern where small classes predominate. Administrative and support staff work collaboratively with faculty in attending to student development so that each student's academic and personal potential can be realized and appreciated. Western New England develops leaders and problem-solvers from among our students, whether in academics, intercollegiate athletics,

extracurricular and cocurricular programs, collaborative research projects with faculty, or in partnership with the local community.

At Western New England, excellence in student learning goes hand in hand with the development of personal values such as integrity, accountability, and citizenship. Students acquire the tools to support lifelong learning and the skills to succeed in the global workforce. Equally important, all members of our community are committed to guiding students in their development to become informed and responsible leaders in their local and global communities by promoting a campus culture of respect, civility, tolerance, environmental awareness, and social responsibility. We are positioned well to accomplish these goals as a truly comprehensive institution whose faculty and staff have historically collaborated in offering an integrated program of liberal and professional learning in the diverse fields of arts and sciences, business, engineering, law, and pharmacy.

Our Core Values

- Excellence in Teaching, Research, and Scholarship
- Student-centered Learning
- A Sense of Community
- Cultivation of a Pluralistic Society
- Innovative Integrated Liberal and Professional Education
- Commitment to Academic, Professional, and Community Service
- Stewardship of our Campus

Our Vision for Approaching Our Second Century

In 2019 Western New England will celebrate its Centennial as an institution of higher education. Our focus will continue to be on the whole student, but in a 21st century context highlighting the demands of a diverse and global society, the accelerating pace of technology, and the necessity of attention to environmental sustainability. Our next decade will be marked by a continued dedication to excellence, visionary thinking, flexibility, and entrepreneurial spirit. We must continue

to develop as a comprehensive institution offering an integrated program of liberal and professional undergraduate and graduate education while establishing ourselves in a position of regional leadership and national recognition.

A Brief History

The Springfield Division of Northeastern College, known as Springfield-Northeastern, was established in 1919. Evening classes, held in the YMCA building on Chestnut Street in Springfield for students studying part-time, were offered in law, business, and accounting. The first 13 graduates were recognized in 1922 with the degree of Bachelor of Commercial Science. In 1923, the first seven law graduates were recognized.

On July 17, 1951, the Springfield Division of Northeastern University was chartered and became Western New England College.

On April 26, 1956, 34 acres for the current Wilbraham Road campus were purchased. The first building, originally known as East Building, and later renamed Emerson Hall in recognition of the College's first trustee chairman, Robert R. Emerson, opened in 1959.

The School of Arts and Sciences was established in 1967, and Western New England received accreditation as a general purpose institution in 1972.

The University flourished on its new campus. The decades of the Sixties, Seventies, Eighties, and Nineties saw Western New England's academic programs expanding, its student body growing, and the addition of a number of buildings including the D'Amour Library, the Blake Law Center, the St. Germain Campus Center, the Alumni Healthful Living Center, and the LaRiviere Living and Learning Center. In 2001, The Evergreen Village townhouses opened for seniors. In 2002, the Kevin S. Delbridge Welcome Center opened, housing the admissions offices. Commonwealth Hall was added in 2003 along with the Golden Bear Stadium. The George Trelease Memorial Baseball Park was completed in 2004. A \$1.9 million addition to the D'Amour Library was completed in 2005 and a \$5.5 million addition and renovation of the Blake Law Center in 2008.

In 2008, Western New England launched its first Ph.D. program in Behavior Analysis. The following year, the institution opened a new eco-friendly residence hall for upper-classmen. The \$40 million Center for the Sciences and Pharmacy, the most ambitious construction project in our history was opened in 2011.

On July 1, 2011, following approval by the Massachusetts Board of Higher Education to change its status from "college" to "university," the institution officially became Western New England University. The Schools of Arts and Sciences, Business, and Engineering became known as "Colleges," while the School of Law retained its name.

In fall 2011, the Western New England University College of Pharmacy will welcome its first class to the Pharm.D. program. The College of Engineering will add the University's second doctoral program: the Ph.D. in Engineering Management.

Educational Opportunities

The University provides students with an impressive range of educational options. Each program is unique in its integration of liberal arts and professional education, theory, and practice. Some programs prepare students for successful lives in business, industry, and for continued study in graduate school. In others, students receive hands-on, experiential learning through internships, work with faculty on their own research, and interact with organizations in the community. There is an emphasis on the integration of technology in all programs, and students are provided with an increased international perspective to prepare for work in today's global economy.

The faculty and staff are dedicated to personal interaction with students and to fostering an open environment conducive to personal growth. In addition to a wide range of academic programs, Western New England University also provides academic and other support services for students needing assistance in their studies and for those with disabilities.

The University provides opportunities for semester long and short seminar study abroad opportunities in England, China, France, Italy, Mexico, and many other countries. Furthermore, the University is located in an urban community with rich educational and cultural resources, and it participates in the Cooperating Colleges of Greater Springfield

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(CCGS), a consortium of colleges in which educational opportunities are enhanced through the sharing of resources.

Campus and Facilities

The campus is located in a residential section of Springfield at 1215 Wilbraham Road, about four miles east of downtown Springfield.

Classes are conducted in six major classroom-laboratory buildings that provide approximately 112 classrooms and laboratories.

The St. Germain Campus Center serves as a focal point for student activities and services. Included within the center are the dining hall, a food court, the Java City Café, student lounges, convenience store, conference and student organization rooms, activity areas, and a bookstore. Law students enjoy eating and socializing in the Court Café in the Blake Law Center.

The University maintains several residence halls and apartment complexes that accommodate students in varied housing styles.

Facilities for intramural and intercollegiate athletics are available on the campus. Included are tennis courts, softball and baseball diamonds, and soccer fields. The University's multipurpose turf stadium serves varsity sports including football, field hockey, and lacrosse. The George E. Trelease Memorial Baseball Park provides an outstanding facility for the Golden Bears. A variety of athletic, recreational, and health-related activities are conducted in the Alumni Healthful Living Center, which serves the entire University community.

D'Amour Library

The D'Amour Library, which opened in 1983 and was expanded in 2005, offers users an inviting atmosphere for research and group and individual study. The library houses a collection of over 133,473 book, journal, and media volumes and provides access to over 41,000 periodical and monographic titles via electronic databases and subscriptions. In addition to its collection of materials that supports the curricula of the University, the library has 111 public computers located throughout the building's three floors that provide access to the Internet and to a variety of software applications. The campus wireless network is accessible within the library.

Several individual study rooms are available for use as well as a number of group rooms for collaborative projects.

The library provides on-campus and off-campus access to its online catalog, WILDPAC, and to its numerous web-based resources through its webpage at <http://libraries.wne.edu>. WILDPAC lists the holdings of both libraries on campus, the D'Amour Library and the Law Library, while also providing links to many of the other online library catalogs in the area. Other resources available from the library's webpage include JSTOR, Project Muse, MarketResearch Academic, Compendex, and several databases from FirstSearch, Gale Cengage, and EBSCOhost. Many of these online information resources provide the full text of indexed materials. Articles from the databases and from other online resources may be printed in the library at one of the six available network printers. Off-campus access to many of the online databases is limited to users affiliated with Western New England University.

The library's professional staff offers a full range of information services. Information literacy classes are offered by instruction librarians at the request of faculty to support research and writing assignments in their disciplines as well as to fulfill the general university information literacy requirement. In addition to formal instruction, librarians also provide reference assistance 61 hours per week, including weeknights and Sundays, during the academic year. Longer, individual reference appointments may be scheduled for more in-depth research.

The library is open seven days a week during the academic year. Holidays, summer hours, and exception days are posted in the library and on the library's webpage. Internet access to the library's online databases is available 24 hours a day for authorized users.

The Law Library

Renovated and expanded in 2008, the three-story School of Law library offers an extensive collection of print and electronic resources, as well as a highly trained and dedicated staff to assist students and faculty members in their research. The library's collection of approximately 375,000 volumes includes the newest research and reference volumes, reprints of important historical texts,

electronic databases including LexisNexis and Westlaw, microforms, and selected CDs, DVDs and computer disks. The library is also a selective depository for federal government publications.

The library is open more than 100 hours per week. The only academic law library in western Massachusetts, this rich resource is valued by students, professors, and area legal professionals.

Technology Services

- All students, faculty, and staff are provided with email accounts and voicemail is also available through the campus telephone system.
- Virus and SPAM detection software is available at no charge.
- A campus-wide fiber network links all academic, residential, library, and administrative buildings.
- A student portal, Connect2U, is available for all students (Undergraduate, Graduate, and Law). It permits easy access to Web-mail, Manhattan Learning Management software and the ASAP system for online schedules, grades, degree audits, billing, and financial aid information.
- Wireless networks are available in the Law School, College of Engineering, Campus Center, D'Amour Library, the Southwood residence hall and the newest building, the Center for the Sciences and Pharmacy. Further expansion is planned.
- More than 450 PCs are located in public access areas throughout the campus and a replenishment policy ensures that all computers are state-of-the-art.
- Campus-wide there are over 50 classrooms that have full multi-media presentation capability with PCs connecting to the Internet, built-in projection systems, DVD/VCR players, and complete sound systems.
- Churchill Hall has a computer classroom as well as over 35 computers available for general use.
- The Writing Center, located in Herman Hall, is equipped with PCs in two computer rooms and includes printing services.
- The mathematics and computer science classroom and lab in Herman Hall 115 has high-end PCs. A computer science lab is also available in Emerson 101A.
- D'Amour Library has access to numerous online catalogues and databases. It also has a large number of public access PCs with printing services. The Library also houses a classroom of PCs and dual multi-media presentation technology. D'Amour Library is the home for the Digital Learning Center (DLC) containing over 30 PCs.
- The Educational Technology Center, located on the ground level of the D'Amour Library, includes a training/conference room with MAC computers and multi-media presentation technology.
- The LaRiviere Living and Learning Center is home to a computer classroom with over 25 PCs. Multi-media presentation technologies are also present in four classrooms in this facility.
- The College of Engineering has three rooms with 20+ laptops each, for discipline related studies.
- The School of Law has eight classrooms with multi-media presentation capabilities.
- The School of Law provides a wireless network that permits students with laptops to connect directly to a dedicated network with access to external law research databases. This access is available from the Law Library, classrooms, and lounges.
- The School of Law library houses two computer labs with 20+ PCs and MAC technology that are reserved for law school students. Additional public access PCs with printing services are also available.
- Loaner laptops for special courses are available in D'Amour and Law School libraries.
- D'Amour Library is home to a TV studio and classroom with digital editing workstations for both audio and video content preparation.

Professional and Regional Accreditation

The New England Association of Schools and Colleges (NEASC) regionally accredits Western New England University and all of its programs. Its professional programs are accredited by the following organizations:

In Arts and Sciences:

Programs in Education are approved by the Massachusetts Board of Education (MBE) and meet the standards of reciprocity of the Interstate Certification Compact. The Council on Social Work Education (CSWE) accredits the Bachelor of Social Work program.

In Business:

The College of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

Western New England University is the only private AACSB International accredited college in western Massachusetts. With accreditation, Western New England University is among an elite company of accredited business schools, which comprise 5% of business programs worldwide.

AACSB International accreditation represents the highest standard of achievement for business schools worldwide. Member institutions confirm their commitment to quality and continuous improvement through a rigorous and comprehensive multiyear review.

In Engineering:

The Engineering Accreditation Commission of ABET Inc., 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, 410-347-7700 has accredited the Bachelor of Science programs in Biomedical, Electrical, Industrial, and Mechanical Engineering.

In Law:

The School of Law is accredited by the American Bar Association (ABA) and is a member of the Association of American Law Schools (AALS).

Membership

Western New England University is a member of the Association of American Colleges and Universities, the College Entrance Examination Board, the Association of Governing Boards of Universities and Colleges, the Council of Independent Colleges, the National Association of Independent Colleges and Universities, and the Association of Independent Colleges and Universities of Massachusetts. The College of Business is a member of AACSB International—The Association to Advance Collegiate Schools of Business.

UNDERGRADUATE ADMISSIONS FOR FULL-TIME ENROLLMENT

How to Learn More About Western New England University

Prospective students and parents are encouraged to visit the campus and to avail themselves of the opportunity for a personal interview and tour. Students and parents also have the opportunity to attend a series of Open House Programs. These programs are held on selected Saturdays and Sundays and include a tour of the campus. Currently enrolled students conduct the tours and thus can provide applicants with a personal perspective of the University and student life. While an interview is not required, the University encourages students to arrange for a personal interview at the Admissions Office.

In addition to a campus visit and the University literature, information is available electronically at www.wne.edu/admissions. The Admissions Office can be contacted through the following means:

Telephone: 800-325-1122, ext. 1321 or 413-782-1321
 Fax: 413-782-1777
 Email: ugradmis@wne.edu

How to Apply for Full-time Admission

The following procedure should be completed for admission as a freshman or transfer student for full-time study (12 credit hours or more per semester).

1. Students should submit a completed application. Our preferred method is to apply with an application submitted online through our website (www.wne.edu/admissions). Students can also download an application from the website, obtain an application from the Office of Admissions, complete The Common Application, or complete the Universal College Application.
2. The completed application form should be returned with the nonrefundable \$40 application fee.
3. Students should forward to the Admissions Office an official high school transcript(s)

as well as an official transcript of first term senior grades when available. Transfer students should forward official transcripts of final secondary work, as well as any previous undergraduate study, to the Admissions Office.

4. Results of the SAT I or ACT examinations should be forwarded to the Admissions Office. The CEEB number for the SAT is 3962; the College code for the ACT is 1930.
5. A recommendation from a guidance counselor or teacher is required. Engineering applicants should submit a letter from a math or science teacher.
6. Applicants should submit a personal statement, essay, or untimed writing sample of your choice (at least 250 words).

Application Procedure for International Students

International students who are proficient in the English language and who wish to be considered for admission should comply with the following procedure:

1. Students should submit a completed application. Our preferred method is to apply with an application submitted online through our website (www.wne.edu/admissions). Students can also download an application from the website, obtain an application from the Office of Admissions, complete The Common Application, or complete the Universal College Application.
2. The completed application form should be returned with the nonrefundable \$40 application fee (U.S. dollars).
3. Students should forward to the Admissions Office an official English translation of the high school transcript(s) as well as an official transcript of first term senior grades when available. Transfer students should forward to the Admissions Office an official English translation of transcripts of final secondary school work as well as any previous undergraduate study.
4. The results of the Test of English as a Foreign Language (TOEFL) should be forwarded to the Undergraduate Admissions Office. IELTS, EIKEN, or PTE Academic scores will also be accepted.

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SAT or ACT scores can be submitted instead of the other assessments.

5. An Affidavit of Support form must be submitted to the Admissions Office.
6. An official bank statement declaring that the financial sponsor has sufficient funding to support the student's education at Western New England University should be submitted on the bank's stationery.
7. A recommendation from a guidance counselor or teacher is required.
8. A copy of the passport should be provided.

The I20 Form will be issued to an accepted international student.

Specific Requirements for the Various Colleges

Persons admitted as regular degree-seeking candidates must have graduated from an approved secondary school or have obtained a General Equivalency Diploma (GED). They must also have successfully completed the following minimum preparatory units:

College of Arts and Sciences

The College of Arts and Sciences requires four units English; one unit laboratory science; two units mathematics equivalent to two of the following: algebra I, geometry, or algebra II; one unit United States history.

1. One unit of chemistry and one unit of biology are required for prospective majors in biology, chemistry, forensic biology, forensic chemistry, neuroscience and pre-pharmacy. In addition, one unit of physics is recommended for prospective majors in chemistry, forensic chemistry, neuroscience and pre-pharmacy.
2. Prospective majors in biology, computer science, and information technology are required to present three units of mathematics; a fourth year is recommended.
3. Prospective majors in chemistry, forensic biology, forensic chemistry, mathematics, and pre-pharmacy are required to present four units of mathematics. One unit must be the equivalent of a pre-calculus course. Students must arrive calculus-ready.

College of Business

The College of Business requires four units English; one unit laboratory science; three units mathematics equivalent to algebra I, geometry, and algebra II; one unit United States history.

College of Engineering

The College of Engineering requires four units English; one unit United States history; four units mathematics equivalent to algebra I, geometry, algebra II, and an additional year beyond algebra II (such as precalculus) which includes trigonometry; one unit laboratory science; and one unit physics or chemistry (preferably both).

When Admission Decisions Are Made

Western New England University begins accepting students for the fall semester after the first term senior grades are available. The Undergraduate Admissions Office continues to review applications until the class is filled. The University also enrolls students midyear. Acceptance for the January semester begins in early fall.

When It Is Necessary to Declare Enrollment Intentions

A nonrefundable tuition deposit of \$100 is required by May 1 from each student who has been accepted. Students who plan to live on campus must submit an additional nonrefundable housing deposit at the same time. These fees are deducted from the total charges. After the tuition deposit has been paid, the following are required prior to registration:

1. Physical examination form including immunization verification completed by the applicant's healthcare provider.
2. Verification of health insurance coverage, in compliance with Massachusetts state law, or participation in the University's insurance program.

Transfer Credit Evaluation

The number of transfer credits is based upon work completed at previous accredited institutions. The status of transfer students is not automatically determined by the number

of credit hours already earned or by the nomenclature of courses taken. Rather, each transcript is evaluated on a course-by-course basis. Normally, credit is allowed for each course that is equivalent to a corresponding course at Western New England University provided the earned grade is C- or above. Within a few weeks of acceptance, the Undergraduate Admissions Office sends each transfer student a degree audit, which shows how each previous course applies to the student's specific degree program at Western New England University. In certain English and Mathematics courses, application of transfer credit may be subject to completion of additional assessment.

Up to 70 credits are acceptable in transfer from two-year colleges, and up to 90 credits from four-year colleges and universities (including any applicable two-year college credits).

The College of Business requires that the majority of credits, contact hours, or other metric in traditional business subjects counted toward the degree fulfillment be earned at Western New England University.

Transfer Students' Degree Requirements

Customarily, a student who has received an associate's degree in an approved program from an accredited college and who is accepted for admission will be granted junior status. Although it is often possible for such a student to complete a program in a chosen field within two years at the University, the specific requirements of some majors may require a longer period of study. It is necessary for a transfer student to complete at least one year (30 credit hours) of study at Western New England University in order to be granted a degree. Students transferring to Western New England University may follow the requirements of their chosen major using the year when they become a student at Western New England University or the year when they first matriculated at their first college if less than four years prior to the transfer to Western New England University. This decision will be made by the student and approved by the chairperson of the major program.

Advising for Transfer Students

Prior to actual enrollment, transfer students may seek advice from several distinct vantage points. General transitional guidance is most often sought from the Office of First Year Students and Students in Transition. It is here that much of pre-enrollment advising is coordinated. In most cases, formal communication begins in early May for fall admission and in December for spring semester entry. This office also serves as the point of contact for initial course registration and pre-matriculation orientation. In addition, transfer students may contact the Dean's Office of the College in which the desired major is administered, particularly if there are questions regarding transfer credit and planning remaining academic work. Issues pertaining to changing curriculum choice prior to matriculation are typically handled through the Admissions office.

Joint Admissions

The Joint Admissions Program is offered in collaboration with the following community colleges: Berkshire, Greenfield, Holyoke and Springfield Technical. The program is designed to facilitate the transfer of students earning an associate's degree from a designated community college. Eligible students are conditionally accepted to Western New England University upon enrolling in the program. An emphasis is placed on advisement to ensure the maximize transfer credit is applied towards an approved major, and to ensure a smooth transition to Western New England University. Participating students must earn a minimum 2.3 cumulative grade point average (based on a 4.0 scale) and either the associate's degree or a minimum of sixty (60) semester hours. Students are subject to the same transfer credit restrictions that apply to traditional applicants.

Transfer Articulation Agreements

Transfer articulation agreements have been arranged between Western New England University and various community and junior colleges. Associate's degree graduates who have followed the prescribed programs of study at these specific institutions may be able to complete requirements for baccalaureate

degrees in two years at Western New England University.

Reinstatement Procedure (Reactivation)

Whenever continuous enrollment has been interrupted, students must initiate formal contact with the University in order to request reinstatement and/or reactivation. Observing the following steps will result in the most efficient review, and timely decision.

- If previously suspended or on probation at the time of last enrollment, submit a written request to the Dean of First Year Students and Students in Transition, who will coordinate the necessary review of the appropriate Academic Dean and others involved.
- If enrollment is discontinued in good standing, the student may simply submit a request for reactivation, directed to the Dean's Office of the College in which the desired major is administered. Requests may also be directed as above.
- Official transcripts of any academic work taken since leaving the University must be submitted prior to the beginning of classes in the semester in which the student wished to register. Depending on the academic program intended and the nature of the academic standing at the time of last enrollment, the student may need to provide evidence of a 2.5 GPA for any coursework taken in the interim.
- Upon re-enrollment or reinstatement, students are subject to all rules, regulations and academic requirements effective at the time of re-enrollment or reactivation.
- On-campus housing is not necessarily guaranteed.

UNDERGRADUATE ADMISSIONS FOR PART-TIME STUDY

How to Apply for Admission to Part-time Study

The Admissions Office oversees admission to part-time study. Students are accepted on a rolling admissions basis.

1. Application forms for day and evening study may be obtained from the Admissions Office, or electronically from the Graduate Studies and Adult Learning link at www.wne.edu/adultlearning
2. A completed application includes:
 - a. The completed, signed application form
 - b. The nonrefundable \$30 application fee
 - c. An official high school transcript or proof of the achievement of high school equivalency
 - d. An official transcript from each institution of higher education attended
 - e. A letter of recommendation
3. Applicants may be required to complete specific college-level courses in a nondegree status prior to formal admission
4. Students admitted to part-time status may register for day, evening, or online courses.

GRADUATE ADMISSIONS

How to Apply for Admission

Admission to all graduate degree programs at Western New England University requires an earned baccalaureate from an accredited college or university and additional materials as described below. Applicants to the master's programs may be admitted for any term on a rolling admissions basis. MEEE candidates who wish to complete the program in two years are encouraged to start during the fall term. This is due to the sequential offering of courses. Candidates admitted to the Ph.D. in Behavior Analysis program begin their studies during the fall term. The application process and admission to the J.D. and LL.M. programs in the School of Law are described in materials available directly from the School of Law.

Applicants to the M.S. in Applied Behavior Analysis may begin the program in the fall.

Graduate Transfer Credit. Students who have earned graduate credit before they apply to Western New England University may request the transfer of a maximum of six credit hours for 30-credit master's programs or 12 credit hours for master's programs comprising at least 36 credits. The minimum required grade for transfer is B (3.0). Final award of graduate transfer credit is at the discretion of the dean responsible for the applicant's degree program.

Credit Earned in Nondegree Graduate Status. Graduate credit earned at Western New England University in nondegree graduate status may be applied toward graduate degree requirements up to a normal limit of six credit hours. The minimum grade is B (3.0).

Time Limits. Accepted graduate credits may be applied toward graduate degree requirements for no more than eight years. For example, an acceptable graduate course completed in the fall term of 2011 counts toward graduation only until the end of the 2019 summer term.

Application Procedures for Graduate Programs:

1. Obtain an application for graduate degree programs from the Admissions Office or electronically from the Graduate Studies and Adult Learning homepage at www.wne.edu/graduatestudies
2. Submit a completed, signed application for graduate admission with the required fee to the Admissions Office.
3. Arrange to have official college and university transcripts sent directly from all institutions attended.
4. Arrange to have other documents, such as letters of recommendation or official test score reports, sent directly from the reporting person or agency as described below for the specific degree programs.
5. Completed applications are reviewed by the Graduate Admissions Committee of the appropriate college.
6. Applicants for graduate certificate programs should contact the Admissions Office for application procedures.

College of Arts and Sciences. The Master of Arts in Mathematics for Teachers (MAMT) and Master of Arts in English for Teachers (MAET) programs are designed primarily for secondary and middle school teachers in the specific disciplines. These programs are also available to candidates with an interest in further study in either mathematics or English in nonteaching fields.

The requirements for the MAMT and MAET degrees are:

1. A baccalaureate degree from an accredited college or university;
2. An overall undergraduate grade point average (GPA) of at least 2.5 (a GPA of 3.0 in the major is preferred for both programs);
3. An academic or professional background equivalent to at least a minor in mathematics for the MAMT program or in English for the MAET program. Further, it is preferable that applicants have either a Provisional or Initial License in teaching. Applicants lacking an undergraduate major in mathematics or English may have to take more than ten courses in order to complete the corresponding program;
4. A minimum of two letters of recommendation, at least one of which must be from the candidate's supervisor;
5. A current résumé;
6. Submission of a personal statement.

The Master of Education in Elementary Education (MEEE) program is designed primarily for elementary teachers who hold an initial license in the field.

The requirements for the MEEE are:

1. A baccalaureate degree from an accredited college or university;
2. An overall undergraduate grade point average of at least 2.8;
3. An Initial License for elementary teaching from the Commonwealth of Massachusetts;
4. Two letters of recommendation, at least one of which must be from the candidate's supervisor;
5. A current résumé;
6. Submission of a personal statement.

Admission to all three programs will be based on the candidate's previous academic records, present and potential performance in teaching, and letters of reference.

Candidates desiring to take courses without the initial intent of pursuing the degrees can request tentative status, which allows them to take up to two courses in the desired program. A tentative status student upon completion of the two courses either must formally apply for admittance to the program or formally indicate no degree intent in order to continue taking courses in the program. Requests for nondegree study beyond the two course limit must be approved by the dean of the College of Arts and Sciences. Nondegree participants in the Elementary Education program must have a bachelor's degree from a regionally accredited college or university with a minimum 2.5 overall GPA.

The Master of Education in Curriculum and Instruction program is designed primarily for elementary or secondary teachers who hold a teaching license or certificate, however, it is also available to teachers who have an interest in graduate study in any of the areas covered by our courses.

The requirements for the M.Ed. in Curriculum and Instruction are:

1. Completion of a baccalaureate from an accredited institution, preferably in a field related to education;
2. An overall undergraduate grade point average of at least 2.8;
3. Two years of teaching or administrative experience in a school setting is preferred. Candidates with less than two years of experience are still encouraged to apply and will be considered on a case-by-case basis;
4. Two recommendation letters, at least one of which must be from the candidate's supervisor and speak directly to the applicant's intellectual capacity and ability to be successful in master's level work;
5. A current résumé;
6. A typed, one-page, single-spaced personal statement articulating your reasons for pursuing graduate study in education and how the degree will help you attain your personal goals.

The Master of Science in Applied Behavior Analysis.

Developed in response to the increasing demand for teachers and practitioners trained in best practices for the education and treatment of individuals with autism and related disabilities, the Masters Program in Applied Behavior Analysis at Western New England University will give working professionals the skills to fill this void. Through a combination of coursework and supervised practical experiences, students completing this program will earn a Masters degree in Applied Behavior Analysis and meet the Behavior Analysis Certification Board (BACB) requirements for taking the exam to become Board Certified Behavior Analysts. This program is offered at the New England Center for Children, as are the six courses required for the Masters Program beyond the Certificate Program.

The requirements for the M.S. in Applied Behavior Analysis are:

1. A minimum of a bachelor's degree, and at least a 3.0 grade point average in their bachelor's program;
2. A combined score of 1000 on the verbal and quantitative sections of the GRE;
3. Three letters of recommendation;
4. Submission of a personal statement;
5. A current curriculum vitae.

Doctor of Philosophy in Behavior Analysis.

Developed in response to the increasing demand for scientists and practitioners of evidence-based methods for the education and treatment of individuals with autism and related disabilities, the Ph.D. program in Behavior Analysis at Western New England University will give you the skills to fill this void and become a leading voice in the field. Through a combination of coursework and supervised practical and research experiences, the aim of the Psychology Department is to train researchers and scientist-practitioners in the discovery, translation, and application of knowledge toward solving human behavior problems of societal importance (e.g., autism and related disabilities). All classroom course work is done at the New England Center for Children.

The requirements for the Ph.D. in Behavior Analysis are:

1. A master's degree in behavior analysis, or were certified as a master's-level behavior analyst by the Behavior Analysis Certification Board;
2. A minimum of a 3.6 grade point average (GPA) in their master's degree program. (Tentative acceptance is allowed for having a GPA between 3.25 and 3.6, if other criteria are above minimal criteria.);
3. A combined verbal and quantitative score of 1100 on the Graduate Record Exam (GRE) with neither score being below 500 for full admission (Tentative admission is allowed if either score is less than 500, if other criteria are above minimal criteria.);
4. Three letters of recommendation;
5. Submission of a personal statement;
6. A current curriculum vitae.

College of Business. For the Master of Business Administration (MBA) and the Master of Science in Accounting (MSA) degrees the requirements are:

1. A baccalaureate degree from an accredited college or university;
2. An official score report for the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE) taken not more than five years prior to the application date, or satisfaction of exemption as indicated below:
 - a. The completion of a graduate degree from an accredited college or university with quantitative coursework, averaging a GPA of 3.0 or higher.
 - b. Professional certification, such as Certified Public Accountant, which meets Western New England University College of Business standards.
 - c. Currently enrolled in the Western New England University School of Law J.D. program in good academic standing.
 - d. A minimum of four years of professional experience outlined in a current resume and a written statement of explanation. The professional experience should meet the following guidelines.
 1. Demonstrates steady career progression toward senior levels of management with increasing

budgetary responsibilities since earning the bachelor's degree.

2. Demonstrates professional and academic experience showing preparation for quantitative oriented courses.
3. Two letters of recommendation;
4. Submission of two essays;
5. A current résumé.

College of Engineering. For programs leading to the Master of Science in Engineering Management (MSEM), the Master of Science in Electrical Engineering (MSEE), the Master of Science in Mechanical Engineering (MSME), and Master of Science in Engineering (MSE), the requirements are:

1. The graduate programs in engineering require a baccalaureate degree in engineering, or a closely related field, from an accredited college or university. Those seeking admission to the master's programs without such a degree may petition to have their baccalaureate degree and professional experience accepted as a substitute;
2. A grade point average in the last half (usually 60 credit hours) of undergraduate work of a minimum of B (3.0);
3. Two letters of recommendation from persons acquainted with the applicant's business, professional, or academic achievements;
4. Current résumé;
5. Students with an undergraduate program not accredited by ABET are encouraged to submit a GRE score from the past five years.

School of Law. The School of Law offers full- and part-time J.D. programs designed to be completed in three and four years respectively. A total of 88 academic credits is required for graduation.

Additional information and an application form are available by contacting:

Admissions Office, Western New England University School of Law, 1215 Wilbraham Road, Springfield, MA 01119, 800-782-6665, or email: admissions@law.wne.edu

It also offers a part-time LL.M. program in Estate Planning and Elder Law designed to be completed in two or three years. The program is offered online. A total of 24 academic credits is required for graduation. Additional information and an application form are available by contacting:

LL.M. Admissions Office, Western New England University School of Law, 1215 Wilbraham Road, Springfield, MA 01119, 413-782-1426, or email: calexandra@law.wne.edu

How Graduate Admission Decisions Are Made

The admission decision is based on the applicant's undergraduate academic performance in combination with other evidence, such as official test scores submitted as part of the application. Applicants judged by the graduate admissions committee to be deficient in verbal, quantitative, or general academic preparation may be granted permission to register at the discretion of the committee. These students are allowed to take up to two courses as a nondegree student. Upon satisfying specified conditions a student will be reconsidered for admission. Conditions may include, but are not limited to, satisfactory completion of prerequisite courses; demonstrated academic performance in graduate courses at Western New England University; and satisfactory completion of undergraduate English and/or mathematics courses.

School of Law

Admission to the J.D. program in the School of Law is dependent upon an applicant's performance on the Law School Admissions Test (LSAT), undergraduate grade point average, and other information that would assist the Admissions Committee in assessing the applicant's ability to pursue a career in legal education. College courses that improve an applicant's writing, analytical, and critical thinking skills are especially important.

Combined JD/MBA (Juris Doctor/Master of Business Administration) Degree and JD/MSA (Master of Science in Accounting)

Candidates for this program are required to apply to both the MBA or MSA program through the College of Business and the J.D. program through the School of Law.

Combined PharmD/MBA

Candidates for the program are required to apply to both the MBA through the College of Business and the PharmD program through the College of Pharmacy.

Combined MSEM/MBA (Master of Science in Engineering Management/Master of Business Administration) Degree

Candidates for this program are required to apply to both the MSEM program through the College of Engineering and the MBA program through the College of Business.

Status

Applicants to graduate programs in Arts and Sciences, Business, and Engineering at Western New England University can be admitted in one of the following categories.

Degree Status

Students who are admitted as fully qualified to undertake a program leading toward a degree are termed degree status students.

Tentative Status

Students may be permitted to enroll in courses leading to a degree under tentative status before the application and evaluation process is complete. The tentative status is valid for a maximum of seven credits in the first term or two consecutive terms of no more than four credits each. Upon the conclusion of the tentative status period, the student's application and academic record will be evaluated. The evaluation will result in termination, admission to degree status, or admission to nondegree status.

Nondegree Status

Students who wish to take graduate courses outside of a degree program may be approved as nondegree status students. Nondegree status students do not require as much supporting documentation but are required to provide proof of a baccalaureate degree from an accredited college or university. They may take courses subject to space availability and an advisor's approval. Continuing registration requires minimum grades of B (3.0) in all Western New England University graduate courses. Nondegree students may apply a maximum of seven credits toward a degree if they complete the application process and are accepted as degree status students. Nondegree status students who take more than seven credits and complete the requirements for a

certificate may apply for degree status and, upon their acceptance into a degree program, all courses common to both the certificate and the degree will be applied to the degree.

NONDEGREE STATUS

How to Register for Courses Taken in Nondegree Status

The University offers nondegree enrollment for students who wish to explore undergraduate or graduate study and earn credit before they are formally admitted to a degree program, and for visiting students from other institutions. Academic requirements may change over time so that courses completed in the nondegree status may not be applicable to the program chosen at the time of matriculation. Nondegree students are not eligible for most types of financial aid.

Certificates

Undergraduate certificates are available in chemistry, and communication. Graduate certificates are offered in graduate study in Green Belt and Lean Systems. Information is available through the Admissions Office.

Undergraduate Nondegree Study

Permission to register requires proof of high school graduation or its equivalent. Continuing registration normally requires a cumulative grade point average of C (2.0) in courses taken at the University. Nondegree students must satisfy published course prerequisites and may be required to submit official transcripts as proof of appropriate preparation. Advising of nondegree students is provided through the colleges.

Graduate Nondegree Study

Please refer to Nondegree Status, above.

UNDERGRADUATE POLICIES, PROCEDURES, AND REQUIREMENTS FOR DEGREES

Basic Structure of the Undergraduate Degree

At Western New England University, students typically enroll in programs designed to be completed in four academic years. Bachelor's degrees are earned by completing at least 122 credit hours in a structured program, though undergraduate degrees in engineering and certain other degree programs can require up to 132 credit hours.

Course Loads

The University considers 12-17 credit hours to constitute a normal course load for full-time students. Students who have earned Dean's List standing in the previous semester may enroll for 18 credit hours without special permission. In other cases, each request for enrollment for 18 or more credit hours requires the recommendation of the student's advisor and approval by the dean of the academic college in which the student is enrolled. First year students require the approval of the Dean of First Year Students.

Online Course Load

Full-time undergraduate students at Western New England University, in order to experience a wide range of pedagogy, are allowed to register for no more than one online course per semester of the regular academic year. Online courses can only be taken after the freshman year. There is no restriction to the number of online courses/credits a full-time student can apply toward a degree provided the courses are equivalent to Western New England University courses.

Credit Hours System

Credit in all programs is awarded in accordance with regional accreditation standards based upon the Carnegie classification system. In that system one credit hour is earned for attending one 50-minute lecture each week for the typical 15-week semester. Thus, a three-credit-hour course meets, typically, for 50 minutes three times per week for 15 weeks or for 75 minutes twice a week for 15 weeks. Some evening courses meet only once a week for 160 minutes. In the usual 122 credit hour degree program students complete ten three-credit-hour courses per year and the two-credit-hour

requirement in physical education, health, and recreation (PEHR).

Class Standing Designations

Students are designated as either freshman, sophomore, junior, or senior in accordance with the number of credit hours they have completed at the University in a structured degree program.

Freshman: 26 credit hours or fewer (27 credit hours in the College of Engineering).

Sophomore: 27-56 credit hours completed (28-61 credit hours in the College of Engineering).

Junior: 57-86 credit hours completed (62-94 credit hours in the College of Engineering).

Senior: 87 credit hours or more completed (95 or more credit hours in the College of Engineering).

Relationship of Course Designation Numbers to Stages in Curricula

All courses in the catalogue have course designation numbers. In general, the numbers designate the level of the course offering within a four-year curriculum and within a major program of study.

Freshman courses are numbered:

100 to 199	Lower Division
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Sophomore courses are numbered:

200 to 299	Lower Division
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Junior and Senior courses are numbered:

300 to 499	Upper Division
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Major programs of study typically consist of one or two 100 level courses and two or three 200 level courses taken as prerequisites in the freshman and sophomore years, and the remaining 300 and 400 level courses taken in the junior and senior years.

Components of a Typical Undergraduate Degree

A student continually enrolled, with no interruption of academic program longer than one semester's absence, is expected to fulfill the requirements of the catalogue current at the time of admission to the University. A student not continually enrolled may be expected to meet the requirements current at the time of reactivation.

The courses required for a degree differ with the choice of major program and the college

within which that program is offered. All students are subject to three classifications of course requirements:

1. General University requirements, see p. 36.
2. College requirements designed to broaden and deepen students' knowledge of disciplines outside of their majors.
3. The requirements of a major, see p. 52.

Qualifications for a Baccalaureate Degree

In order to qualify for a baccalaureate degree a student must:

1. Comply with the entrance requirements for normal matriculation.
2. Meet the attendance requirement.
3. Receive passing grades in all courses required for the degree.
4. Attain a minimum grade point average of 2.0 for the entire curriculum. (Transfer students must maintain a 2.0 average in courses taken at the University. Transfer hours are not included in determining the Western New England University grade point average.)
5. Attain a minimum grade point average of 2.0 in the major.
6. Complete at least 30 credit hours at Western New England University.
7. Complete at least 24 of the last 30 credit hours used in satisfaction of the degree requirements with courses offered by programs of Western New England University.
8. Complete an Application for Degree form, which will place the student's name on the list for October, February, or May degree conferral, as appropriate.

Award of Degrees Policy

The University does not guarantee the award of a degree or a certificate of satisfactory completion of any course of study or training program to students enrolled in any instructional or training program. The award of degrees and certificates of satisfactory completion is conditioned upon satisfaction of all current degree and instructional requirements at the time of such award, compliance with all University policies and regulations, as well as meeting *bona fide* expectations of the faculty.

Student Responsibilities and Academic Advising

Academic advising at Western New England University is framed against the University Mission Statement and is guided by a commitment to student academic progress and personal growth. Specifically, advising is intended to enhance and support student learning in an atmosphere of personal concern. Advising seeks to engage intellectual growth and self-discovery, and is carried out through a consistent exchange between student and advisor. That shared relationship thereby attempts to prompt students to develop decision making skills, set realistic expectations, and practice the necessary coping strategies to attain their educational, life, and career goals.

Each full-time student is assigned a faculty advisor. In the freshman year of full-time study, the academic advisor is normally assigned on the basis of enrollment in First Year Seminar. After the sophomore year and beyond, students are normally assigned or may choose an advisor according to the academic department in which the student's major is contained. Students who are undecided remain with their current advisor or are assigned to the Academic Support Center until a major is declared. Academic advising is provided for part-time students through the appropriate college. Although the advisor should be consulted on matters of curriculum, the ultimate responsibility for decision on the student's program of study remains with the student. Furthermore, each student holds the ultimate responsibility to understand degree requirements and to plan for orderly fulfillment.

It is important that students work with their academic advisors to develop an academic plan enabling them to complete many of the fundamental General University Requirements by the end of the sophomore, or second, full year of study. While this may not always be possible due to schedule limitations of certain programs or other schedule anomalies, students should strive to acquire the prerequisite skills and knowledge necessary to succeed in their major programs. For example, students will need to have skills in research and writing in order to understand and complete assignments in upper division courses in and outside of their major fields of study. Students should also consult their advisor to choose elective courses that both broaden and deepen their

knowledge of disciplines that are important for success and well being beyond the University experience.

Degree Audit

An automated degree requirement system, known as a Degree Audit, assists students and advisors in assessing the progress of a student's program of study. It enables students and advisors to project the orderly fulfillment of their curriculum plan. It includes a record of all the student's courses completed to date and their courses in progress, and serves as an unofficial projection of courses remaining in a degree program.

A Degree Audit can also be used to determine the progress status of degree programs other than the currently declared major. In other words, if a marketing major wants to determine the viability of becoming a management major, a trial Degree Audit can be retrieved and populated with all courses taken to date by a student, along with the remaining degree requirements.

While a Degree Audit is a useful tool for planning the orderly fulfillment of degree requirements, students and advisors must realize it is not a replacement for the official academic transcript, nor should it be used as a substitute for verifying official degree requirements. The University catalogue the student has matriculated under is the primary source.

Policies and Procedures

Student Contact Data

Students are obliged to provide and maintain basic contact data such as permanent and local address, local telephone or cell phone, and an active email account if the account is other than the email provided by the University. This information shall be updated as necessary but must be provided prior to course registration each semester.

Student Schedules, Registration, and Adding or Dropping Courses

In order to register for classes, the student typically meets with a faculty advisor to discuss the student's selection of courses. Consultation with a faculty advisor is required to initiate the course registration process. If the advisor is not available, students may seek consultation with the corresponding assistant dean. First year students may also consult with

the Office of First Year Students and Students in Transition.

Once registration has been completed, students are expected to consult with the advisor (or Dean's Office if advisor is not available) before any additions, deletions, or changes can be made in the student's schedule. All changes must be reviewed by the advisor or dean. Changes also need to comply with established deadlines to add and/or drop a course. Instructor approval must also be obtained to add a class after it has met for the equivalent of one week.

For any change of schedule to be valid (after the first week of classes), including course withdrawals, the student must submit a schedule change form to Student Administrative Services (SAS). Absence from class or notifying the instructor without completing the drop form does not constitute withdrawal from a course.

English and Mathematics Assessment

In an effort to encourage student success, assessment in both English and Mathematics is required for all first year and transfer students prior to completion of course registration. Appropriate recommendations are then provided for course selection and registration, awarding of transfer credit and/or additional support services.

Course Offerings

Western New England University attempts to offer the widest possible selection of courses each year, but the University reserves the right to withdraw, modify, or add to the courses offered, or to change the order of courses in curricula as circumstances warrant.

The University further reserves the right to cancel under-enrolled courses. Students affected by such cancellations will be permitted to choose another course. In cases where other courses cannot be substituted, students may be permitted to waive requirements or receive full or partial refunds of tuition and other fees. The University also reserves the right to change the requirements for graduation, the tuition, and the fees charged as circumstances dictate and needs arise.

Modifying a Student's Major Degree Program

Any modification or change to a student's major degree program requires the written permission of the student's academic dean.

The waiver/substitution form may be obtained in the student's academic dean's office.

Concurrent registration in more than one academic program leading to separate degrees is not allowed without the written permission of the appropriate academic dean. Permissions forms may be obtained in the student's academic dean's office.

Change of Student's Curriculum/Major

Changing a student's curriculum/major within the same college or changing a student's curriculum/major to a different college, requires the completion of an "Application for Change of Curriculum". The form is available in the student's academic dean's office.

Changing a degree program may result in assignment to the catalogue requirements in effect at the time of the change.

Taking Coursework at Another College

Coursework towards a student's degree program may be pursued elsewhere only with the prior written permission of the student's academic dean. Permission forms are available in the student's academic dean's office. An official copy of the transcript needs to be sent to Student Administrative Services Office (SAS) upon completion of the prior approved coursework.

Integrity of Scholarship

Honesty in all academic work is expected of every student. This means giving one's own answers in all class work, quizzes, and examinations without help from any source not approved by the instructor. Written material is to be the student's original composition. Appropriate credit must be given for outside sources from which ideas, language, or quotations are derived. Additional information on academic dishonesty may be found in the Student Handbook and the Academic Integrity Booklet.

Attendance

Students are expected to attend all class sessions for courses in which they are enrolled. However, it is the responsibility of the individual instructor to evaluate the importance of attendance in determination of course grades.

Accordingly, at the beginning of each semester each instructor prepares a written statement setting forth the policy for consideration of absences, makeup examinations, and related matters, which will be in effect for that entire semester. The statement of policy on

attendance, appropriate to each class, is made available at the first class meeting.

It is especially important for freshman students to establish the discipline of attending all classes and laboratories and to be properly prepared by having done all assigned reading and homework. It can be easily demonstrated that students who fail to attend class do not succeed in college.

Midyear and Final Examinations

Midyear examinations are given at the discretion of the faculty member teaching the course. The normal pattern is that final examinations are given in all courses in accordance with a schedule published by the Academic Schedule Office. In case an instructor decides not to give a final examination, the instructor must inform the college's Dean.

Final examinations must be given on the date and at the time scheduled by the Academic Schedule Office unless other arrangements have been approved by the college's dean and forwarded to the Academic Schedule Office. Under no circumstances are final examinations to be administered during the final week of classes. Further, during the last week of classes hour examinations are permitted only in those courses where there is a final examination, semester paper, or semester project requirement due the week of final examinations. The chair of each department is responsible for the adherence of the latter policy by all members of the department. In addition, no examinations or quizzes shall be administered the last day of classes (if it falls on Monday) or on the last two scheduled days of classes (if the last day of classes falls on Tuesday or thereafter). This policy does not in any way relieve the student of responsibility for material covered in the last days of classes.

The faculty member in each course in which students are enrolled determines the value and weight of a final examination. All final examinations are given at the end of the semester according to a predetermined schedule. The anticipated schedule is normally published at the beginning of each semester. Students should note the exam schedule when arranging travel plans for departure at the end of the semester.

When preparing the exam schedule, every attempt is made to avoid scheduling more than two exams for each student in any given

day. Should this situation occur, however, the Faculty Senate has adopted a policy to assist students in managing the conflict. In the case of a student who is scheduled for three final examinations on one day, the examination in the middle time is expected to be rescheduled at the convenience of both the student and the faculty member. The student must give notice to the faculty member of the middle exam no later than 10 days prior to the start of the examination period for that semester.

There are two exceptions, however, to the middle exam solution. The first is that if the student can move any of the three examinations to the examination for another section of the same course taught by the same instructor, he or she must make that request of the faculty member if the move does not cause another conflict. The second exception is that if the middle examination is a common examination (multiple sections of the course all taking the same exam), one of the other two remaining exams will be rescheduled by joint agreement between the two faculty members. The student should make the conflict known to both faculty involved. If an agreement cannot be reached, a decision will be jointly made by the Deans of the Colleges in which these two courses are housed.

The final exam schedule is posted on the Academic Schedule Office's website, www1.wne.edu/academicschedule and ASAP.

Interpretation of the Grading System

The work of each student is graded according to the following scale. Figures indicate grade point equivalents:

Superior	A (4.0)	A- (3.7)	
Above Average	B+ (3.3)	B (3.0)	B- (2.7)
Average	C+ (2.3)	C (2.0)	C- (1.7)
Passing	D+ (1.3)	D (1.0)	
Failure	F (0)		

In certain courses (ED 380, MATH 130, SW 314, SW 409, SW 410, SW 411, and SW 412) a grade of "P" (Pass) is assigned if the course is satisfactorily completed. "P" has no grade point equivalent.

Repeating a Course

Any course in which a grade of less than "C" was received may be repeated at any time during the student's enrollment at Western New England University. The official transcript

shows the complete record, but the grade point average is computed on the basis of the most recent earned grade in each course. Credit for the course is awarded only once. This policy is noted when a transcript is sent out. In cases where a course grade of "F" has been assigned as a penalty for gross academic dishonesty, a student may not replace that grade in the cumulative GPA. The student may retake the course, but the resulting grade is counted as a separate course.

Incomplete Work

I (Incomplete) — This grade is awarded only when work is not completed due to circumstances beyond the student's control (such as severe illness). The student has six weeks from the last day of final examinations to satisfy course requirements. Extension may be granted only for continued circumstances beyond the student's control and must be approved by the instructor and the dean of the college. The "I," which can be resolved only by the instructor, carries a grade point equivalent of 0.0. The "I" becomes an "F" for work not completed after six weeks or by the conclusion of an approved extension period.

Withdrawal from a Course

To withdraw from a course, the student must obtain the advisor's or dean's signature on the course withdrawal form available from the Student Administrative Services (SAS) office. Absence from class without completing the form does not constitute withdrawal and may result in a failing grade. (See section on Withdrawals and Refunds regarding payments, p. 402.)

W (Withdraw) – If the student withdraws from a course within the first two weeks, no grade is assigned. If a student withdraws after the second week of classes, but prior to the last withdrawal date published in the final schedule for that semester, a "W" is assigned. However, a student may not receive a grade of "W" to avoid the consequences of a breach of academic integrity. A grade of "W" carries no academic penalty or prejudice.

Withdrawal from the University

If it becomes necessary for full time degree students to withdraw or request a leave of absence from the University, an official form must be completed and filed with the Academic Support Center. This form will be made part of the permanent record maintained in Student Administrative Services (SAS). Prior to completing the withdrawal form, students are

expected to consult with the Dean of First Year Students and Students in Transition in order to complete a formal exit interview. When such conditions as severe illness or absence from the area prevent a student from filing the withdrawal form in person, an application for withdrawal by mail is acceptable. A letter should state the reasons necessitating the withdrawal and should be mailed to the Dean of First Year Students. In the case of part time or graduate students, withdrawal forms are filed with the Academic Dean's Office of the College in which the student's major is administered. The date recorded by the reviewing administrator is considered to be the date of withdrawal. (See the section on Procedure for Withdrawing, p. 360)

President's List and Dean's List

To be placed on the President's List, a full-time student must be enrolled in courses carrying a minimum of 12 credit hours and achieve a semester grade point average of 3.80 or above.

A part-time student may qualify for the President's List by carrying a minimum of 12 credit hours cumulatively for the academic year and achieving a grade point average of 3.80 or above.

To be placed on the Dean's List, a full-time student must be enrolled in courses carrying a minimum of 12 credit hours and achieve a semester grade point average of 3.30 or above.

A part-time student may qualify for the Dean's List by carrying a minimum of 12 credit hours cumulatively for the academic year and achieving a grade point average of 3.30 or above.

Honors

Honors are awarded at graduation for superior scholastic attainment. Students are recommended for honors if, in addition to satisfying all other requirements for the degree, they have completed a minimum of 60 credit hours at the University and have earned the required grade point average:

Cum Laude requires a grade point average of at least 3.30.

Magna Cum Laude requires a grade point average of at least 3.60.

Summa Cum Laude requires a grade point average of at least 3.80.

Students who graduate with between 45 and 59 credit hours completed at the University

and who have a grade point average in those courses of 3.50 or higher graduate With Honors.

Academic Progress: Probation, Suspension, and Dismissal

Student academic progress is reviewed each semester to assure consistency with defined standards. For the purpose of review, the number of credit hours specified in the standards is normally based on credits completed at Western New England University.

Full-time degree students with fewer than 24 credit hours attempted (excluding AP or high school to college credits) will be automatically placed on academic probation if they attain less than a 1.9 semester grade point average at the end of their first term of enrollment. Part-time students must sustain a 2.00 cumulative GPA after the first 24 credit hours. Nondegree students must sustain at least a 2.00 cumulative average in order to continue registration beyond the first semester of enrollment.

Full-time degree students with fewer than 24 credit hours who attain less than a 1.00 or successfully complete less than 9 credits at the end of the first term of enrollment shall be automatically suspended for a period of one semester except as may be approved by the Dean of First Year Students and Students in Transition. Following any period of suspension, students may petition for reinstatement by submitting request to the Dean of First Year Students and Students in Transition who will forward a recommendation to the appropriate Assistant Dean of Arts and Science, Business, or Engineering for approval.

Any full-time degree student whose first semester GPA results in being placed on probation must contact the Dean of First Year Students and Students in Transition prior to the date set forth in the notice of probation for the purpose of initiating an academic improvement plan. The academic improvement plan is meant to establish the conditions that the student must meet to continue at the University. After the first 24 semester hours attempted, part-time, non-traditional and off-campus students must initiate contact for the same purpose with appropriate academic administrative staff within one week of the release of grades from the previous semester or term. If after establishing an academic improvement plan, the student does not comply with the prescribed conditions of

continuance, the student may be subject to immediate suspension or dismissal from the University with the right of appeal to the Academic Standards Committee. Any student who does not confer within the prescribed time listed in the original notification of academic standing shall be immediately suspended from the University for a period of one semester.

After the completion of the second semester of full time enrollment or after the first 24 credit hours of work attempted as a part-time student, students shall be automatically placed on academic probation if a semester GPA of less than 2.00 is earned. Unless otherwise approved, full-time students must also successfully complete 10 or more credits during each semester of full-time enrollment. Otherwise probation shall be automatically imposed. Once placed on probation, a student must confer with the Assistant Dean of the appropriate College or Dean of First Year Students and Students in Transition or other named staff prior to the end of the first week of classes of the next semester for the purpose of defining an academic improvement plan. The academic improvement plan shall be filed in the same manner and under the same conditions as would occur after the first semester of enrollment. If conditions stipulated in an academic improvement plan are not met, the student shall be suspended for a period of one semester with the right of appeal to the Academic Standards Committee.

A student on probation must achieve a minimum of a 2.00 semester grade point average during the next semester of enrollment and adhere to the completion of the specified number of credits determined at the time of review. If a 2.00 is not achieved or the minimum number of credits is not earned, the student shall be suspended for a period of not less than one semester with the right of appeal to the Academic Standards Committee. If the student chooses to appeal, the Academic Standards Committee shall consider the appeal and either impose suspension for a period of time or reinstate the student. In either case, the Academic Standards Committee may elect to specify conditions for future or continued enrollment. If, upon reinstatement, conditions are not fulfilled, permanent dismissal may be imposed immediately and enrollment for the semester voided with no expectation of recourse, financial or otherwise.

Additionally, following the completion of 87 credit hours (Arts and Sciences or Business)

or 95 credit hours (Engineering), any student with a cumulative grade point average of less than a 2.00 overall or a 2.00 in the major shall be automatically placed on probation. The student placed on probation shall be referred for academic progress monitoring administered through the Office of First Year Students and Students in Transition prior to the beginning of the probation semester or not later than the end of the first week of classes and enter into a written agreement regarding the conditions upon which the student may continue at the University. If the stipulated conditions are not met, the student shall be suspended from the University with the right of appeal to the Academic Standards Committee.

The Academic Standards Committee shall meet at the end of both the fall and spring semesters to consider academic progress records. Students who have been previously suspended or whose suspension has been lifted through consideration of appeal are subject to dismissal with the right of appeal to the Academic Standards Committee.

When the opportunity to appeal suspension or dismissal for academic reasons is given, students must exercise that option by the date indicated in the written notice. If the option to appeal is not exercised, the intended action specified in the notice (dismissal or suspension) shall be automatically imposed. All matters relating to academic status are made part of the permanent record.

All notices of suspension and dismissal are mailed to the home address of the student by first class mail. A copy of the notice is also sent to the student's faculty advisor and the appropriate assistant dean.

Appeals of Academic Standards Committee decisions are allowed only if new information not previously disclosed is submitted in writing prior to the start of classes for the semester intended. This appeal will be reviewed by the Vice President for Academic Affairs with the resulting decision final and binding and without right of further review.

SPECIAL ACADEMIC OPPORTUNITIES

Advanced Placement (AP)

The University will normally grant credit for AP subjects taken in high school and for which a student scores a 3 or higher on the standardized AP exam. A score of 4 or 5 may be required to obtain credit for a specific course. Appropriate credit depends on the specific academic program to which the credit is applied. In some circumstances, the credit will be applied to an elective rather than a course required for the major. The Dean's office of each College will determine how the credits will be applied for courses taught in that college.

Air Force ROTC

The Aerospace Studies Program, also known as Air Force ROTC, is unique in that it is the only agent through which a student can, upon graduation, receive a commission as an officer in the United States Air Force. To earn this commission, a student must enroll in Aerospace Studies courses, pass an Air Force Officer Qualifying Test, be physically qualified, attend an officer field training summer camp, and receive a baccalaureate degree.

Upon graduation and commissioning, the officer will normally serve a period of active duty in the Air Force. To assist the student while in college, the program offers a variety of one, two, three and four year scholarships, and provides a monthly stipend of \$250-\$400 to all contracted cadets, as well as \$600 per year for textbooks. Students in good academic standing in any recognized major are eligible for scholarships and subsequent commissions.

There are limits to the amount of ROTC credit that can be counted toward a degree. Students majoring within the College of Arts and Sciences are limited to 15 credit hours, College of Business students are limited to 12 credit hours, and College of Engineering students are limited to 3 credit hours which must be at the 300-level or above.

For additional information about this program, please contact Air Force ROTC at 413-545-2437 or email usairforcerotc@wne.edu. You can also view the website at www.umass.edu/afrotc

Army ROTC

Full-time undergraduate and graduate students may participate in the Army ROTC program at Western New England University. Upon successful completion of the program, students receive commissions as Second Lieutenants in the U.S. Army (Active or Reserve). Classes are open to all students and may be taken for general education credits with no obligation.

Students who commit to pursuing the commission receive a \$350-\$500 per month stipend while participating in ROTC. Four, three, and two year scholarships are available to students who apply and meet the requirement to contract into ROTC to pursue an officer commission. These scholarships cover tuition, laboratory fees, and books and also pay each recipient a \$450-\$500 per month stipend.

Special programs exist for students to work with four semesters remaining to earn their degree and for students who desire to pursue a four semester master's degree. This program allows the student to complete all ROTC requirement in only two years and gain a commission as a Second Lieutenant. The classes for the first two years are waived in this option.

Any Army ROTC student who desires a commission in the Army National Guard or Army Reserves can obtain a Guaranteed Reserve Forces Duty Scholarship. For further information refer to contact listed below.

For information contact the assistant professor of Military Leadership at the Western New England University ROTC building; 413-782-1332, or usarmyrotc@wne.edu

Air Force/Army ROTC College Incentive

Western New England University will provide up to full room and board to any student receiving a four-year ROTC scholarship. If the student selects Gateway, Evergreen or Southwood, for residence, they will receive full room and \$1,500. If the ROTC scholarship is less than full tuition, the incentive could be reduced accordingly.

Other students, including Advance Designees, who receive ROTC scholarships after enrolling at the University, will receive full room during the period that they qualify for the ROTC scholarships.

The incentive will be considered part of all gift aid a student may receive from the University based on merit or need. In no case will the total gift aid provided by the University and external gift aid exceed the student's direct cost of education.

Auditing

Subject to space limitations, a student may audit a course if granted approval by the instructor in which the course is offered. Auditing serves to enable a student to study the subject matter of a course when a grade is neither required nor desired. An audit carries no credit, has no grade point equivalent, and is recorded simply as "Audit." A student intending to audit a course should consult the Student Administrative Services (SAS) office for the proper procedure. (See the section on Fees, p. 400.) See the academic calendar for deadline to change from "audit to credit" status or "credit to audit" status.

Graduate courses in the Colleges of Arts and Sciences, Business and Engineering may be audited on a space-available basis by alumni who have completed bachelor's or master's degrees at Western New England University and who also have the listed prerequisites for the course selected. Courses in the School of Law are not available for alumni auditors. The University does not maintain any record of registration or completion of courses by alumni auditors.

Certificate Programs

Western New England University makes several Certificate Programs available to those who do not want a degree, but who want specialized training that goes beyond a few courses in a subject. The undergraduate certificate programs in chemistry and communication can be found on p. 195 and p. 196. Information on the graduate certificate programs in engineering can be found on p. 354. The Certificate in Applied Behavior Analysis can be found on p. 339.

Center for Teaching Excellence

The Western New England Center for Teaching Excellence is designed to provide faculty with access to cutting-edge, empirically validated teaching strategies. Through workshops, faculty presentation, and consultation, the

Center serves as a repository for teaching related information and gives students access to faculty who are well trained to be excellent in and out of the classroom. Founded in 2011, the Center will continue to build and develop programs focused on teaching and teaching related activities.

Credit for Prior Learning

Undergraduate students may satisfy up to 30 credit hours of their degree requirements through demonstration and documentation of prior learning. Outlined below are several vehicles through which prior learning may be assessed.

Note: This policy does not apply to Criminal Justice or Law Enforcement majors, who must consult the requirements specific to their degree.

College-Level Examination Program (CLEP)

This nationwide program allows undergraduate students to demonstrate academic competence and obtain college credit by examination. Several general and subject area examinations are available. The subject matter of the examination taken must be applicable to the student's curriculum, but may not include foreign language in the student's native language. The student's academic dean must be notified of the intent to take such examinations. The scores must be submitted to the appropriate school for evaluation. CLEP credit may not be used to meet upper-level course requirements.

Credit for Nontraditional Educational Experience

The University will review, for possible credit, educational programs sponsored by non-collegiate organizations such as business, industry, government, professional, voluntary associations, and work place experience. Decisions to award transfer credit are based primarily upon The National Guide to Educational Credit for Training Programs, published by American Council on Education, and The Directory of the National Program on Non-collegiate Sponsored Instruction, published by the Board of Regents of the State of New York. In addition, courses and training obtained through the Armed Services will be reviewed on the basis of the recommendations made by the American Council on Education

in the Guide to the Evaluation of Educational Experiences in the Armed Services.

Portfolio-based Credit

The deans may award transfer credit for portfolio-based credits for prior learning that have been assessed by Charter Oak State College or other regionally accredited colleges or universities.

Students who are interested in obtaining more information about portfolio assessment should contact the Admissions office for referral to Charter Oak State College where appropriate.

Cooperating Colleges of Greater Springfield (CCGS)

Western New England University, in cooperation with seven of the area's public and private institutions, has established a cooperative association designed to enhance the educational experience through the use of cooperative programs and services. Those services include inter-college library privileges, joint student activities, academic cooperation, and student activity calendars.

Known as the Cooperating Colleges of Greater Springfield (CCGS), the association was formed in 1970 by the presidents of the member institutions: American International College, Bay Path College, Elms College, Holyoke Community College, Springfield College, Springfield Technical Community College, Western New England University, and Westfield State University.

CCGS also sponsors an eight-college exchange program. Under this plan for curriculum enrichment, any full-time undergraduate who has paid tuition at their own home college may take up to two courses or up to eight credit hours per semester each semester at any one of the other CCGS institutions, provided that the courses are not offered at the home institution and that seats are available at the host institution. Part-time students attempting at least six credit hours in a degree program are also qualified to participate in the CCGS program. The above-stated conditions may not apply to summer sessions, evening classes, winter session, continuing education classes, and online courses. Information concerning additional guidelines and registration procedures may be obtained from the Student Administrative Services (SAS) office.

Credit-in-Escrow

Qualified high school students may take regular college courses during the regular semester or in the summer as they complete their high school studies.

Exploratory Program

Recognizing that many students have not chosen a career path at the time of admission, the University offers direction and guidance through the Exploratory Program. Instead of selecting a major course of study, those students who prefer to defer such a selection may elect the Exploratory Program. The Exploratory Program has no specific course requirements. It provides special advising and guidance about career choices.

The selection of a major course of study is made before the end of the sophomore year. After declaring a major, the student leaves the Exploratory Program and follows the regular curriculum of the chosen program.

First Year Seminar

To enhance the first-time student's acclimation to collegiate study, the University provides opportunities to develop the skills and methods that will promote academic success and personal development. In the First Year Seminar courses (LA 100, BUS 101, ENGR 102) students explore such topics as goal setting and decision-making, time management, problem solving, critical thinking, information literacy, public speaking skills, personal identity, and an introduction to a major, or exploring fields of study.

High School Year in College (Early Admission)

The high school student who is academically able and socially mature may combine the senior year of high school and the first year of college. At the end of the combined year, the student is granted a high school diploma and becomes a matriculating student.

Honors Program

The Honors Program at Western New England University is intended to give academically qualified and motivated students the opportunity to join a community and participate

in challenging courses taught by some of the University's best faculty. The program allows students to broaden their education by taking courses in a variety of disciplines with honors students from other majors, and by exploring topics that cross disciplinary boundaries. Honors courses tend to be small, discussion-based seminars, sometimes taught by pairs of professors from different disciplines. Whatever the topic, honors courses encourage students to develop and support their own ideas, both orally and in writing, and to build critical reading and analytic skills. New honors students automatically become members of the Honors Student Union, and as such play an active role in the governance of the Honors Program, helping to plan future course offerings and program activities.

Admission

Entering freshmen with a high school GPA of at least 3.5 and SAT scores of 1100 or better will be invited to submit a written application to the Honors Program. Students who do not meet these criteria but still strongly wish to be considered for acceptance into the program are also encouraged to apply. In some cases, the Honors Admissions Committee may wish to interview applicants. Admission decisions will be made by the Honors Admissions Committee before and during the Summer Orientation and Registration Program (SOAR).

Transfer students entering Western New England University who achieved at least a 3.5 GPA at their previous colleges, may apply for admission to the Honors Program. At the discretion of the Director, transfer credit from three honors courses at other schools may be awarded up to a maximum of nine semester-hours. Second semester Western New England University freshmen may also apply for admission to the Honors Program if they have compiled a 3.5 GPA in their first semester at the University. If admitted, these students will enter the Honors Program in the fall of their sophomore year.

Honors Courses

The Honors Program at Western New England University is not a major in itself, but is open to students in any major. Students who have been admitted to the Honors Program must complete 6 HON courses (18 semester-hours) and a senior honors project in order to graduate with University Honors. Honors students generally take one honors course each semester for their first three years and work on their honors project during their

senior year. All freshman honors students must take at least one introductory (100-level) honors course before proceeding to higher level honors courses. Students also have the option of taking a faculty-directed research course (HON 333) as one of their six honors courses; this course must be approved by the Honors Curriculum Committee.

Senior Honors Project

Each senior honors student works closely with a faculty advisor to plan and execute a final project of his or her choice. Students have virtually complete freedom in their choice of topic, but most opt for a topic within their majors. Interdisciplinary topics are entirely acceptable. This project is worth at least 3 semester-hours of credit, and will normally take the form of an independent study (HON 495); however, students who are already required to do an appropriate senior project for their major may, with approval, submit this as their honors project instead. All honors projects must be approved and evaluated by the Honors Curriculum Committee.

Maintaining Honors Status

Students in the Honors Program must maintain a 3.3 overall GPA to graduate with University honors. Any student whose cumulative grade point average falls below 3.3 will be given two semesters during which to restore their cumulative GPA to 3.3 or better. Students whose GPA remains below 3.3 for a third semester will be dismissed from the program, although they may reapply if they subsequently raise their GPA to an acceptable level.

Independent Study and Special Arrangements

A limited number of qualified students are accorded the opportunity to pursue course work through supervised independent study. Students must have junior or senior standing plus a minimum grade point average of 3.0 overall or in the major field. In general, such study should be of mutual interest to the student and faculty supervisor, should be of an advanced nature, and should include work not normally covered in the classroom. Credit may vary from one to three credit hours. Only six credit hours of independent study credit may count toward the degree.

In order to enroll in an independent study course, the student must make arrangements prior to registration. Applications for

independent study are available from the appropriate academic dean. The application must be completed and signed by the student, the faculty supervisor, the faculty supervisor's department chair, and the student's advisor. If the student's academic dean approves the application, the student is given a form authorizing registration for the study.

Special Arrangement

A Special Arrangement course is designed for students who cannot fit a regularly offered course into their schedule. An arrangement is reached with a faculty member whereby the student can complete the course in a nontraditional format without sacrificing standards of requirements.

In order to enroll for a Special Arrangement course, the student must make arrangements prior to registration. Applications are available from the appropriate academic deans. The application must be completed and signed by the student, the faculty supervisor, the faculty supervisor's department chair, and the student's advisor. If the student's academic dean approves the application, the student is given a form authorizing registration for the course.

Individualized Programs of Study (Integrated Liberal Studies)

For the student who does not want to pursue a traditional major program, the integrated liberal studies program provides the opportunity to construct an individualized major. Such a program combines a selection of related courses from two or more disciplines according to the interests and goals of the student.

Students who wish to devise and pursue such a program should request permission and guidance from the academic departments in which they propose to do a substantial part of the work. Final approval of such a program rests with the dean of the College of Arts and Sciences upon recommendation of the departments concerned. No request for an integrated liberal studies major will be considered earlier than the end of the freshman year or later than the beginning of the senior year.

The following guidelines serve as minimum requirements for an integrated liberal studies major:

1. The general course requirements for the B.A. degree shall apply.
2. An integrated liberal studies major shall offer a minimum of 36 credit hours. At least 30 of these shall be courses at the 300-400 level.
3. Only courses at the 200 level or above may be counted toward fulfillment of the integrated liberal studies major.
4. A minimum of the minor in business administration is required of any student desiring to do a substantial part of the work within the College of Business. However, no more than 25% of the total coursework can be College of Business courses.

Internships

In any discipline, qualified juniors and seniors may undertake an internship for academic credit with an approved agency, organization, or business.

Internships have a single purpose: to further the student's knowledge in a specialized area in a way not customarily available within the regular classroom setting.

Credit for internships varies from one to three credit hours. There are limits to the amount of internship credit that may be counted toward the degree: in the College of Arts and Sciences, students are limited to six credit hours; in the College of Business and College of Engineering, students are limited to three credit hours. College of Business students are limited to one non-profit board field experience. A student must have completed at least 57 credit hours and have a minimum GPA of 2.5 overall and in the major, except where an internship is required in the major, or obtain special permission of their dean to undertake an internship.

To enroll in an internship for academic credit, a student must make arrangements with the **Career**Center, prior to registration. An internship application must be completed and signed by the student, the academic advisor, the department chair, and the internship coordinator.

A student may also pursue a nonacademic internship to further enhance their knowledge in a specialized area.

Undergraduate Research

A limited number of qualified undergraduate students may undertake supervised research if they show both interest in and aptitude for independent and creative work. Applications may be made for research in any of the disciplines in which faculty are willing to involve students. When such research is conducted, students must submit written reports for approval by the faculty of the department in which the work was conducted. The supervising faculty member and the department chair must approve grades for such work.

In order to enroll for undergraduate research, the student must make arrangements in writing prior to registration. Applications are available from the deans of the Colleges of Arts and Sciences, Business, and Engineering. Applications must have the signatures of the student, the faculty supervisor, and the department chair. If the dean of the College approves the application, the student will be given a form authorizing registration for the work.

New England Center for Children Program

Western New England University students interested in applied psychology and the education of students with autism and other special needs have the opportunity to spend either a full semester or a full year at the New England Center for Children. This facility, located near Boston, offers courses in applied behavior analysis and provides students with supervised experience working with children with autism. Interested students should consult with the chair of the Department of Psychology.

Selection of Students: Applications will be reviewed by the Department of Psychology and forwarded, along with the recommendations of the department, to the New England Center for Children. The Center will select the final participants.

Pre-Law and 3+3 Law Program

Western New England University has offered legal education for nearly a century, and the Western New England University School of Law provides an excellent opportunity for those who wish to pursue the graduate professional degree in law.

Preparation for law school is not a matter of taking prescribed courses or majors. Law schools customarily do not encourage undergraduates to major in any particular subject. Students are generally successful in law school if they succeed in any major that develops skills in reading, writing, and critical thinking, and if they do well on the Law School Admission Test (LSAT).

Pre-law students may choose any major including the pre-law curriculum within Integrated Liberal Studies. Students considering a legal education should pursue their individual interests through those courses that are most likely to foster success in American law schools (courses that improve written and oral communication, provide readings about a wide range of human experience, and develop reasoning skills).

Qualified Western New England University students who want to attend Western New England University School of Law can earn their bachelor's and Juris Doctor degrees in just six years instead of seven in the 3+3 Law program. To qualify for this program, students must have a minimum undergraduate grade point average of 3.3 and score above the median LSAT for the previous year's School of Law matriculants. Students who qualify can enter the School of Law in the fall of their fourth full-time undergraduate year and receive their bachelor's degrees at its end. They are eligible to obtain their Juris Doctor degrees after two more years of study.

It is not possible, however, for all majors to qualify for the 3+3 Law program. Chemistry, Computer Science, Mathematics, Social Work, and most engineering programs require too much sequential work in those disciplines to allow completion in three years. Biology majors would require some summer course work in order to complete this program.

In order to apply for this program, transfer students must successfully complete at least 45 credit hours of undergraduate studies at Western New England University. Students considering a career in law are eligible for

membership in the Pre-Law Society, which provides cocurricular activities for pre-law students. Among the society's activities are workshops on selecting and applying to law schools; field trips to observe law classes; mock trials; and films, lectures, and discussions designed to clarify the responsibilities and privileges of the profession of law.

The office of the pre-law advisor maintains files of reference materials on law schools, the Law School Admissions Test, and other subjects of interest to pre-law students. Regardless of major, students thinking about attending law school should consult with the pre-law advisor, Associate Professor Peter Fairman, Department of History and Political Science, at the earliest opportunity.

Accelerated Six-Year Biomedical Engineering/Law Program

Biomedical engineering is entering one of the most exciting times in the field's history. Exponential increases in innovation and technology are making the dreams of yesterday the realities of today. Complex issues on the cellular and molecular level, the merging of living tissues with man-made devices, and questions of ethics are at the forefront of topics that will face biomedical and legal professionals in the future. There is an increasing demand for people educated in both engineering and law to manage intellectual property issues that surround these new inventions.

To be tentatively accepted into this unique program in the freshman year, students need a minimum SAT Math score of 650 and a minimum Critical Reading SAT score of 650 or ACT equivalent scores of 29 in English, Math, and Composite and a high school GPA of 3.5 or higher. Students not meeting these precollege requirements, but who have demonstrated superior performance in their studies at the University, may petition to be considered for the accelerated degree sequence at the end of their sophomore year.

Students need to maintain a 3.3 undergraduate GPA in order to maintain their tentative acceptance to the School of Law. Following the sophomore year, students take the LSAT and need to score above the 50th percentile of the previous year's matriculating Law School class. During the fourth year, students will be completing their BSBE degree and begin taking classes at the School of Law. These law

classes are offered in the evening so there is no conflict with the engineering courses. The summer following senior year is spent completing the requirements of the first year of law school and puts the student on track to complete the law degree in just two additional years. These final two years of the program follow the standard School of Law timetable.

Pre-Medical and Pre-Dental

Pre-medical and pre-dental students are not restricted to specified major areas of concentration but are encouraged to select a major that is most consistent with their interests and that offers as many alternatives for postgraduate study or employment as possible. Students in Arts and Sciences, Business, and Engineering are able to pursue a pre-med program. Students should consult with their deans in selection of appropriate courses.

The suggested sequence of courses: BIO 107,108, 117,118; CHEM 105, 106, 209, 210, 219, 220; PHYS 133, 134; MATH 133, 134; one year of a modern foreign language. As early as possible, all pre-medical and pre-dental students should consult the dean of the College of Arts and Sciences who will arrange for proper advising prior to the selection of courses.

The recommended course sequence is designed to meet the requirements for entrance into most American medical and dental schools. The student is cautioned, however, that admission to such schools is highly competitive.

Five-Year Bachelor/MBA Program

This program allows undergraduate students in the Colleges of Arts and Sciences, Business, and Engineering to accelerate the completion of the bachelor's degree and to earn the popular and valuable Master of Business Administration (MBA) degree with just one additional year of study*.

*Available to all majors except for Education and Social Work. Engineering majors may only be admitted to the program prior to the end of their first year.

Five-Year Bachelor/ MSA Program

This program allows undergraduate accounting majors in the College of Business to accelerate the completion of both the bachelor's and master's degrees in Accounting. Students can earn the Master of Science in Accounting (MSA) degree with just one additional year of study.

Five-Year Bachelor/ MSEM Program

This program allows undergraduate Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Engineering and to earn the master's degree in Engineering Management (MSEM) with just one additional year of study.

Five-Year Bachelor/ MSME Program

This program allows undergraduate Mechanical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Mechanical Engineering (BSME) and to earn the master's degree in Mechanical Engineering (MSME) with just one additional year of study.

Five-Year Bachelor/ MSEE Program

This program allows undergraduate Electrical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Electrical Engineering (BSEE) and to earn the master's degree in Electrical Engineering (MSEE) with just one additional year of study.

Service Members Opportunity College

Western New England University has been designated as an institutional member of Service Members Opportunity Colleges (SOC), a group of over 400 colleges and universities providing voluntary post secondary education to members of the military throughout the world. As a SOC member, Western New England University recognizes the unique nature

of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense, and a consortium of 13 leading national higher education associations.

Study Abroad

Why Study Abroad?

Western New England University provides numerous study abroad opportunities. Besides being culturally rewarding and intellectually stimulating, study abroad will enhance your career opportunities and graduate school qualifications. By gaining an appreciation of other cultures, improving your foreign language skills, and becoming more familiar with the global marketplace, you'll open your mind to new possibilities and in the process learn as much about yourself as you will about your nation.

Are There Academic Requirements?

The foreign university specifies the required grade point average but in most cases you'll be able to participate as long as you are in good academic standing.

What About Costs?

Besides airfare and possible differentials in costs of living, the costs are usually equivalent to what it costs to attend Western New England University for a similar time period. However, additional expenses will occur for those who are adventurous and enjoy traveling. Financial aid, either from the institution or government, can be carried over.

Are Internships and Independent Studies Available?

Yes, internships and independent studies are available at most study abroad locations. Internships are especially valuable for all students who are interested in pursuing international opportunities.

Do I Need to Know A Second Language?

While most classes are taught in English, you will probably want to seek out opportunities to learn the native language. You can choose programs that are specifically designed to improve your foreign language skills.

In What Countries Can I Choose To Study?

You can make arrangements to study at colleges and universities throughout the world. Pick the nation where you want to live, study and work. Western New England University will facilitate your international learning experience for one or two semesters. Special opportunities exist for all students to study in Mexico, Ireland, Scotland, England, Germany, France, Spain, Greece, Australia, New Zealand, Cuba and some other countries during winter, spring, and summer breaks.

For information on any of these programs, students should contact Dr. Saeed Ghahramani, Dean of the College of Arts and Sciences, director of the Study Abroad Program, or Dr. Alfred Ingham IV, assistant director of the Study Abroad Program.

Up with People

Through the Up with People partnership, Western New England University students can spend a semester traveling across three continents while experiencing personal growth, leadership training, service learning, and involvement in performing arts. A student completing a semester at Western New England University with a grade point average of 2.5 or better and who has successfully completed 27 credits or more is eligible to participate in the Up with People Program. For details about this opportunity, students should consult with the assistant dean of Arts and Sciences and visit www.wne.edu/upwithpeople

Summer Session and Winter Session

Western New England University is in session throughout the year. To supplement the regular academic year, there is a summer session with courses offered both day, evening, and online, and a winter session between the fall and spring semesters. Information about these course offerings and their prerequisites is customarily available by March for the summer session and November for the winter session. Schedule information may be obtained by contacting the Office of Academic Scheduling (www1.wne.edu/academicschedule) or the Student Administrative Services (SAS) office.

Taking Courses At Another College

A matriculating student who wants to take a course at another institution must obtain prior approval from their college's assistant dean. Grades less than C- will not transfer. After completing 70 or more credits at Western New England University, a student is only permitted to transfer one course to Western New England University from a community college or another institution that does not grant the baccalaureate degree.

Washington Semester

Western New England University participates in the Washington Semester Program offered by American University in Washington, DC. This program, which is open to juniors and seniors, provides an opportunity to study and intern in Washington, DC. Programs are offered in American Politics, Journalism, Justice, Foreign Policy, International Business and Trade, Transforming Communities, Public Law, Economic Policy, Contemporary Islam, International Environment and Development, Israel Studies, International Law and Organization, Peace and Conflict Resolution. Students may intern with government agencies, members of Congress, the courts, private businesses, public interest groups, professional organizations, newspapers, television studios, theaters, or museums. Interested students should contact Dr. Donald Williams.

Writing and Reading Program

Writing Proficiency

In the belief that clear writing is not only central to academic success but also the single most important indicator of professional achievement, the University encourages students to think clearly and to discipline their self-expression. In every course, regardless of the student's major, professors expect students to demonstrate in clear and effective writing that they have assimilated the information and ideas presented. A portion of the grade in each course is determined by performance in written work.

To achieve this goal, the Writing and Reading Program and the Department of English have formed the writing and reading collaborative that determines standards for clear writing and has authorized the use of common

handbooks across the curriculum. The Writing and Reading Program starts in the first year with the two 100 level courses in English writing and reading that are General University Requirements. (A detailed description of the writing requirements appears in the English course descriptions on p. 249). The program continues in the sophomore, junior, and senior years with writing requirements specified by the student's major.

In support of this program the University has a Writing Center and offers tutoring services. The Center is equipped with two computer classrooms as well as print resources and a webpage. Trained peer tutors work with students at all ability levels in all phases of the writing process. Students may work on writing assignments in any course from across the curriculum, design individualized improvement programs, or work on personal writing projects.

GENERAL UNIVERSITY REQUIREMENTS

Foundations

Fundamental to every student's success in college and beyond is competency in four areas that provide the foundation for lifelong learning and for personal and professional effectiveness. These areas are mathematical analysis, communication, critical thinking, and computer competence, including information literacy. The University recognizes the importance of continuing development in these areas in the context of the student's major. The target level of competency in these areas will be determined and assessed by the major in which the student is enrolled. Following is a brief explanation of the importance of each foundation area with suggested courses that might satisfy the requirement.

Mathematical Analysis

Daily life and many professional and intellectual pursuits and success in college require an understanding and appreciation of mathematical reasoning and of mathematical problem-solving.

The ability to establish connections between real world phenomena and mathematical ideas, to analyze quantitative data, and to reason logically allows us to grasp complex issues and better meet the problem solving needs of our technological society.

Thus, it is crucial that students develop the ability to distill what is essential to a problem or situation, to express it using mathematical equations, to use principals of mathematics logically and creatively to solve these equations, and to interpret their solutions in the context of the original problem or situation.

Each student must take the two mathematics foundation courses designated by the College in which they are enrolled. A minimum grade of C is required in one of these mathematics courses for graduation.

Communication

Effective writing and speaking is important in virtually all human activities from informal exchanges with friends and family through the responsibilities of the work place to the highest professional and intellectual pursuits.

The ability to express ideas orally and in writing, using appropriate vocabulary and

grammar and logical organization, allows us to communicate effectively with others in every dimension of our lives.

To develop skills in written communication, each student must take two foundation composition courses (unless exempted). Because writing and reading are closely related and because all students should have some college experience of literature, these courses also feature the analytic reading of nonfiction, fiction, poetry, and drama. Each student must complete these writing courses with grades of C or better.

To develop skills in oral communication, instruction will be provided as part of each student's first year curriculum as determined by the College in which they are enrolled.

Critical Thinking

The ability to think logically about personal, social, and professional problems is important in reaching satisfactory and defensible decisions. The educated person should be able to form and recognize sound arguments.

While critical thinking is an element in virtually every course, each student must take one course in which critical thinking is a major focus. The course will be specified by each College.

Computer Competence and Information Literacy

Understanding how computers function and how to use computer technology is increasingly necessary in many professional pursuits as well as in personal life. As a minimum, students should have the ability to use presentation, word processing, and spreadsheet software. They should also have the ability to access information on the Internet and existing databases.

Students should have the ability to identify, access, evaluate, and select information to fit defined needs and the ability to use that information in an ethical manner.

Each College will specify requirements to achieve computer competence and information literacy.

Perspectives of Understanding

In its Mission Statement, the University commits itself to developing in its students an appreciation of multiple perspectives of understanding. Perspectives are the systematic

ways various academic disciplines view and interpret the world around us. Each perspective enhances the students' understanding of the complexity of the environment in which we live and of the richness of human experience. Ultimately these perspectives have the potential to deepen our judgments and inform our responses to the opportunities and challenges of life and work in the 21st century. They can help us to lead more responsible and fulfilling lives as individuals, family members, and citizens of democracy.

Perspectives courses significantly emphasize three components. First is the approach or method of analysis in the discipline; second is the factual foundation of the discipline; and third is the contribution of the discipline to a greater knowledge of contemporary issues, to other phenomena relevant to the students' experience, or to personal career aspirations. Perspectives of Understanding included in this requirement are Natural Science, Behavioral Science, History, Cultural Studies, Ethics, Aesthetics, and Integrated Liberal and Professional as described below.

Students must complete a minimum of seven perspectives courses that collectively achieve the following:

- All perspectives are covered.
- At least one is an integrated liberal and professional course in which two perspectives are typically presented in a team-taught offering.
- Two are natural science courses, each with laboratories, or two sequential courses in natural science, the first of which must have a laboratory.

Note: Comparative courses that combine two perspectives, such as behavioral science, history, cultural studies, ethics, or aesthetics will satisfy the requirement in both areas. However, students must still take a minimum of five perspectives courses in addition to the natural science courses.

Natural Science Perspective (NSP)

The science perspective cultivates familiarity with the vast realm of accumulated knowledge about the structure and functioning of the physical and biological world. Students should learn part of the factual foundation, including vocabulary, of at least one major area of science and should observe and practice the disciplined logic that scientists employ to discover and evaluate new knowledge.

Social/Behavioral Science Perspective (SBP)

The behavioral science perspective uses scientific methods to study the forces and processes that influence the behavior of individuals, groups, governments, and economies.

Historical Perspective

Through historical inquiry, this perspective enriches insight into the political, social, economic, and cultural forces that have shaped the modern world, providing the context for future events.

Cultural Studies Perspective

The cultural studies perspective gives students a basic understanding of how people from at least one other culture view the world. To accomplish that, this component provides information about the major aspects of the culture: its religion, philosophy, ethical principles, literature, form of government, economy, arts, customs, traditions, and ways of life. Additionally, the cultural studies perspective enables students to see conflicts and disagreements within the culture.

Ethical Perspective

The goal of the ethical perspective is to help students form rationally defensible ethical views to guide their behavior in all aspects of their lives. This requires heightening their sensitivity to ethical issues and providing them with a variety of tools for ethical problem-solving. It involves giving students experience in critical analysis of real-life ethical issues, coupled with a critical examination of the most influential techniques of moral decision-making and moral argument.

Aesthetic Perspective

The aesthetic perspective regards objects in terms of the qualities that make them attractive in and of themselves. It puts natural or human creations in a picture frame and tries to appreciate their inherent richness. Whatever the objects, they are valued not for any utilitarian purpose but for their sensual and emotive effect, for their form, line, color, sound, texture, feeling, meaning.

Integrated Liberal and Professional Perspectives (ILP)

The integrated liberal and professional perspective makes clear the connections between the goals of liberal education and those of professional education. It compares and contrasts the values, perspectives, and assumptions of natural science, behavioral

science, history, cultural studies, ethics or aesthetics to a perspective from a professional discipline.

Learning Beyond the Classroom

The University is committed to making learning beyond the classroom (LBC) a significant element of every students' academic program and personal experience. It is envisioned that through the process of applying their classroom learning to their experiences in the workplace, in the community, on the playing fields, and across the campus our students will not only enhance their learning, but will also begin to connect their learning more directly to the world in which they live. For these reasons, all students will be required to complete two different LBC experiences, one for every two years of full-time study.

Exemptions to the Learning Beyond the Classroom requirement may be applied according to the following circumstances.

- Transfer credit of more than 60 credits allows for consideration of exempting one LBC provided that the student projects degree completion within four semesters. If more than four semesters are required, the exemption does not apply. Once applied, the exemption is not altered if projected degree completion changes. Additional information may be obtained through the Director of Learning Beyond the Classroom.
- A maximum of one LBC can be exempted.
- AP, CLEP, IB or high school to college credit cannot be used in the exemption
- Non-Traditional/adult learner students are exempt from the LBC requirement

Normally each LBC experience will include:

- a) a minimum of fifteen (15) hours of involvement in an activity that provides a demonstrable opportunity for the student to reinforce or enhance understanding or skills introduced in the classroom,
- b) completion of a minimum 1000 word reflection paper in which the student describes the activity or experience, relates the experience to learning introduced in their courses, and reflects on the value of this experience from a learning perspective.

LBC experiences may include:

- a) internships, senior projects, study abroad, or no more than one course based experience with the same course code (e.g. SOC, FIN, etc.) that would incorporate an LBC opportunity. Exceptions can be made for internships within the same department, if they are vastly different in scope and goals.
- b) structured group activities in such areas as student clubs and associations, athletic teams, etc.
- c) individual workplace-based or volunteer activities, on campus or off campus.

Evaluation of all LBC experiences will be through a member of the University's faculty or professional staff as determined by each College. Given the volume of LBC experiences processed each year, the Colleges may arrange for readers who are part of the University faculty or professional staff to ensure that students will be able to fulfill the requirement.

Personal Development

All students are required to complete course work to assist them in their transition to the academic demands of college and in the development of knowledge and skills to support lifelong physical well-being.

First Year Seminar

First year seminars orient students to the scholarly community and assist them in their transition to the academic demands of college. Each College will develop courses to meet its needs. See p. 392.

Exemptions to this requirement may be based on the following circumstances:

- Transfer credit of 27 or more semester hours from a two or four-year college derived from a full time course of study. Exemption may be further considered on an individual case basis provided that a minimum of 21 credit hours are transferred through full time study
- Transfer credits cannot be from CLEP, AP, IB, or high school to college sources
- Non-traditional/adult learners are exempt and substitute course credit is applied according to the student degree program

In all cases of exemption, substitute credit must be applied, i.e. credits toward the degree are not exempt, simply the course.

Physical Education, Health, and Recreation

All entering freshmen are required to complete two credit hours of physical education, health, and recreation (PEHR) for graduation unless the dean of the college in which they are enrolled has granted a specific written exemption. Exemptions to this requirement may be based on the following circumstances. Students should consult the Director of Physical Education for further information.

- Transfer credit in excess of 30 hours exempts both PEHR 151 and PEHR xxx.
- If transfer credits are in the range of 15-30, only PEHR xxx activity exemption can be applied. Physical incapacity, prior active military service, or unique life circumstance that would prevent or restrict full participation may also exempt PEHR .
- AP, CLEP, IB or high school to college credits cannot be used in the calculation of the exemption
- Non-traditional/adult learners are exempt from the requirement and the equivalent credits

No more than two 100-level PEHR courses can be taken for academic credit or can be included in the calculation of a student's overall GPA.

The PEHR requirement is satisfied by successfully completing PEHR 151 (Personal Health and Wellness) and one course from PEHR 153-199 (Lifetime Activity Series). The purpose of the requirement is to provide students with an understanding of current health issues and preventative health measures so that they have the tools necessary for continuing a healthy lifestyle. Students are expected to learn how to monitor their diets and to gain a practical understanding of the relationship between diet, exercise, and weight control. The activity series supplements the classroom work in "Personal Health and Wellness." Students enroll in one of several activities such as walking and jogging, aerobic dance, racket sports, golf, martial arts, personal fitness, strength and endurance training, women's defense training, and, mandatory

for those students pursuing certification in elementary education, “Games Children Play.”

COLLEGE OF ARTS AND SCIENCES

Dean Saeed Ghahramani

Associate Dean Ann Kizanis

Assistant Dean Alfred T. Ingham IV

Assistant Dean Karl Martini

Programs of Study

The College of Arts and Sciences has three primary objectives:

1. To provide academic major and minor programs within the College as career preparation and as concentrations in the various fields of the liberal arts.
2. To provide the courses that satisfy General University requirements in keeping with the founding purpose of the College and consistent with the ongoing role of Arts and Sciences and the academic expertise of the faculty.
3. To provide required courses for its own majors and minors, foundation courses for majors in the Business and Engineering Colleges, and elective courses for the enrichment of students across the University.

In this way the College of Arts and Sciences fulfills its educational purpose in accordance with the mission statement of Western New England University. This Mission Statement calls for integrated professional and liberal education. Arts and Sciences contribute to that mission through providing major programs, General University courses, and service and elective offerings.

The College of Arts and Sciences offers courses and programs leading to a Bachelor of Arts degree with majors in economics, communication, English, philosophy, political science, history, international studies, liberal studies, psychology, or sociology; a Bachelor of Science degree with majors in biology, chemistry, computer science, criminal justice, information technology, law enforcement, mathematics or psychology; and a Bachelor of Social Work degree. Majors in elementary and secondary education are approved by the Massachusetts Board of Education and lead to teacher certifications. Also offered is an Associate’s Degree in Liberal Studies.

To graduate, students must complete at least 122 semester hours in academic courses. Students must complete the requirements of a major program, the General University requirements, and certain area requirements. The balance of the academic program is composed of electives, which are courses chosen entirely by the student, with guidance from an advisor.

Most students attempt to complete the General University requirements during their first two years in college. Such planning provides added flexibility during the junior and senior years, enabling students to concentrate on major programs or to participate in internships or off-campus programs such as the Washington Semester, or New England Center for Children Internship Program, or study abroad.

Minors

The course work for a degree may include one or more of the minors offered by the University. A minor may not be completed in the same discipline as the major. Descriptions of the requirements for the minors are listed on p. 170. Students wishing to take a minor must complete a form in the Office of the Dean, College of Arts and Sciences, no later than the beginning of the final semester.

Department Chairs and Faculty

Department of Communication

Associate Professor Douglas Battema, Chair

Professor Jean-Marie Higirot

Associate Professor Mindy Chang

Professional Educator Brenda Garton

Department of Computer Science and Information Technology

Associate Professor Heidi Ellis, Chair

Professors Lisa Hansen, Leh-Sheng Tang

Associate Professor Herman Lee Jackson II

Department of Sociology and Criminal Justice

Associate Professor Denise Kindschi Gosselin, Chair

Associate Professors John Claffey Alfred Ingham, Michaela Simpson

Assistant Professors Hasan Arslan, Frank Gallo, Laura Hansen

Department of Economics

Professor Herbert Eskot, Chair

Professor Arthur Schiller Casimir

Assistant Professors Anita Dancs, Ranganath Murthy, Karl J. Petrick

Department of Education

Associate Professor Deb Patterson, Chair

Professor Robert Klein

Associate Professor Molly Munkatchy

Department of English

Associate Professor Chip Rhodes, Chair

Professors Janet Bowdan, Brad Sullivan

Associate Professors Josie Brown-Rose, William Grohe, Edward Wesp, Delmar Wilcox, Jeffrey Yu

Assistant Professors Pearl Abraham, Lisa Drnec-Kerr

Professional Educators Linda J. Oleksak, Louise Pelletier, Stephanie Wardrop

Department of History and Political Science

Professor Marc Dawson, Chair

Professors John Anzalotti, John Seung-Ho Baick, William Mandel, Theodore South, Donald Williams, Vladimir Wozniuk

Associate Professors Meri Clark, Jonathan Beagle, Peter Fairman, Catherine Plum, Tim Vercelotti

Department of Humanities

Professor Emmett Barcalow, Chair

Professors Glen Ebisch, Martha Garabedian, Burton Porter

Assistant Professors Hillary Bucs, Heather Salazar, Ellen Gilson Voth

Department of Mathematics

Professor Dennis Luciano, Chair

Professors Saeed Ghahramani, Lorna Hanes, Lisa Hansen, Ann Kizanis, Richard Pelosi

Associate Professors Jennifer Beineke, Enam Hoq, Thomas Hull, David Mazur

Assistant Professor Caleb M. Shor

Professional Educators Pam Omer, John Willemain

Department of Physical and Biological Sciences

Professor Lorraine Sartori, Chair

Professors Anne Poirot, David Savickas

Associate Professors Daniel Hatten, William Macanka, Karl Martini, Alexander Wurm

Assistant Professors John Drawec, Dawn E. Holmes, Anna Klimes, Kathryn Lipson, Suzanna C. Milheiro, Jessica Rocheleau, Burt Rosenman, Isaac Stayton, Shubha Tewari

Professional Educator Karl Sternberg

Department of Psychology

Professor Dennis Kolodziejski, Chair

Professors Chris Hakala, Denine Northrup, Sheralee Tershner

Associate Professors Jessica Carlson, Greg Hanley, Rachel Thompson, Dongxiao Qin

Assistant Professors Ava Kleinmann, Jason Seacat, Amanda Karsten

Department of Social Work

Professor Jeff Schrenzel, Chair

Professor Sara Weinberger

Professional Educator Paula Nieman

Requirements

Students in the College of Arts and Sciences are required to satisfy the General University Requirements, as indicated on p. 36. All students majoring within the College of Arts and Sciences must also fulfill the following requirements:

1. Complete at least 122 credit hours of courses in order to graduate. Note: No more than 15 credit hours of ROTC courses may be counted within this 122.
2. Complete the requirements for a major.
3. Writing Intensive Requirement (WIC). Complete at least six additional credit hours in courses designated as "Writing Intensive," one at the 200-level and one at the 300-level. All Writing Intensive courses are approved by the English department.
4. Complete at least 30 credit hours in advanced courses (numbered 300-400) that may include those in the major and other areas, or complete the requirements for a major and a minor. No ROTC courses may count as advanced courses.

Nonbusiness majors can apply no more than 25% of business coursework to their graduation requirement.

COLLEGE OF BUSINESS

Dean Julie Siciliano

Associate Dean Marilyn Pelosi

College of Business Mission and Vision Statement

Mission

The mission of the Western New England University College of Business is to provide excellent academic preparation toward the development of ethical, responsible, and resourceful business professionals through challenging and relevant learning experiences.

Vision

The College of Business will be recognized among peer institutions and the business community for preparing students with the teamwork, communication, technology, decision making, and leadership skills to achieve effective business solutions, successful careers, and contributions to the community in a constantly changing global environment.

Program Learning Goals

The undergraduate curriculum for students in the College of Business includes the following learning goals.

1. To solve business problems by thinking critically and applying principles of effective decision making.
2. To generate, evaluate, and select alternatives consistent with standards of ethical behavior.
3. To perform well on teams, to provide leadership, to contribute and collaborate to achieve team goals.
4. To communicate professionally, to present analyses, recommendations, and plans clearly, both orally and in writing.
5. To apply information technology concepts and tools to support business problem solving and decision making.
6. To recognize the dynamic domestic and international factors that shape and transform the global business environment.
7. To understand the fundamental concepts from the business disciplines.

Career Preparation

In order to guide students in selecting an appropriate career path, faculty in each department in the College of Business designed to a variety of classroom and outside of the classroom activities to guide the students through the process of a) Career Exploration in the freshman year, b) Career Investigation in the sophomore year, c) Career Determination in the junior year and finally d) Career Implementation in the senior year. In these progressive exercises student will link their interests and skills with career paths culminating with activities designed to help the student to enter the field of choice.

Department Chairs and Faculty

Department of Accounting and Finance

Professor John Coulter, Chair

Professors William Bosworth, R. Loring Carlson, Sharon Lee, May Lo

Associate Professor Lori Holder-Webb

Assistant Professors Ken Guo, Milos Vulcanovic, Yong Wang

Professional Educator Stephen Sugermeier

Department of Business Information Systems

Professor Anil Gulati, Chair

Professors Jerzy Letkowski, Marilyn Pelosi

Associate Professors Tuncay Bayrak, David Russell

Professional Educator Peter Daboul

Department of Management

Associate Professor Jeanie Forray, Chair

Professors William Ferris, Julie Siciliano

Associate Professor Lynn Bowes-Sperry

Assistant Professors Lynn Bakstran, Melissa Knott

Professional Educator John P. Greeley

Department of Marketing

Professor Paul Costanzo, Chair

Professors Elizabeth Elam, Harlan Spotts

Associate Professor Janelle Goodnight

Professional Educator James McKeon

Department of Sport Management
and Business Law
Professor Sharianne Walker, Chair

Professor Harvey Shrage

Associate Professor Daniel Covell

Assistant Professors Curt Hamakawa, James
Masteralexis

Requirements

Most majors in the College of Business lead to the degree Bachelor of Science in Business Administration. Complete requirements for each of the majors in the College of Business are specified under a separate section of this catalogue devoted to major programs. They are accounting, business information systems, finance, general business, management, marketing, marketing communications/advertising, and sport management. Each undergraduate major in the College of Business includes a general education component that normally comprises at least 50 percent of the student's four-year program. Requirements common to all majors are:

1. Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year.
2. Complete at least 33 credit hours of course work at the 300-400 level.
3. Complete at least 12 credit hours of course work at the 300-400 level in the major at Western New England University. The identification of these upper-level courses are listed under each major.
4. Apply no more than 12 credit hours of ROTC courses towards the graduation requirements.
5. Meet all of the requirements specified under Academics, Undergraduate Policies, Procedures, Requirements, and General University Requirements in this catalogue.
6. College of Business Core Requirements (83 credit hours).

College of Business Core Requirements (83 credits)

The following courses are required of all business majors and include University-wide requirements. All are three credit courses unless otherwise noted.

Business Courses (39 credits)

BUS 101	First Year Seminar*
BIS 102	Problem Solving with Business Tools
MAN 101	Management and Organizational Behavior
AC 201	Financial Reporting
MK 200	Principles of Marketing
BIS 202	Introduction to Business Information Systems
AC 202	Managerial Accounting
BIS 220	Introduction to Business Statistics
FIN 214	Introduction to Finance
BL 201**	Legal Aspects of Business
BIS 310	Quality and Operations Management — or —
BIS 312	Quality and Operations Management with SAP
BUS 301	Managing the Established Enterprise — or —
BUS 312	Integrated Business Operations with SAP
BUS 450	Business Strategy

*Required of all entering freshman and transfer students with fewer than 27 credit hours. Transfer students with 27 or more credit hours take a general elective in its place.

**For Sport Management majors, BL 360 replaces this requirement. For Arts and Entertainment majors, BL350 replaces this requirement.

Non-Business Courses (44 credits)

ENGL 132-133	English Composition I & II (6 cr.) Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206 Business Writing in the sophomore year
MATH 111-112**	Analysis for Business and Economics I & II (6 cr.) — or —
MATH 123-124	Calculus I & II for Management, Life and Social Sciences (6 cr.)

Lab Sciences**	Natural Sciences one lab Choice of: biology, chemistry, geology, meteorology, or physics (6 cr.)
EC 111-112	Principles of Economics I & II (6 cr.)
PSY 101	Introduction to Psychology — or —
SO 101	Introduction to Sociology
HIST xxx	Historical Perspective
COMM 100	Principles of Communication
PH 211/MAN 240	Ethical Perspective
CUL xxx***	Cultural Perspective
ILP xxx	Integrated Liberal and Professional Perspective
PEHR 151*	Personal Health and Wellness (1 cr.)
PEHR 153-159*	Lifetime Activities Series (1 cr.)

*Not required for off-campus location or BBA degree programs

Note: MATH 100 Algebra Fundamentals is available for students who have a math deficiency. This course is accepted as nonbusiness elective credit counted toward graduation.

**Students in BBA program may substitute two Business Math courses (above Algebra) for Math 111-112 or 123-124; one non-lab science for the two lab sciences; and one humanities elective for CUL XXX.

***If CUL xxx does not include the aesthetic perspective (CA), a nonbusiness elective must be selected to satisfy that requirement.

Nonbusiness majors can apply no more than 25% of business coursework to their graduation requirements.

Five-year Bachelor/ MBA Program

This program allows full time undergraduate students in the College of Business to accelerate the completion of the bachelor's and master's degrees in business. Students can earn the popular and valuable Master of Business Administration degree with just one additional year of study. A detailed program of study can be found on p. 347.

Program Prerequisites:

Satisfied after completing the undergraduate business core (BIS 220, EC 111, AC 201, and FIN 214) courses with a "B" average or better with no grade below a C.

Program Application and Admission Requirements:

This program seeks students who have excelled in their undergraduate studies. Applicants must:

1. Earn an overall GPA of 3.0.
2. Complete the College of Business Graduate Studies application, and essays for the MBA program. All application materials should be submitted to the Admissions Office.
3. Forward scores for the Graduate Management Admission Test (GMAT) to the Admissions Office. Students should seek to score 500 or higher on the GMAT.

Applicants may take up to two graduate courses in their senior year. A third graduate course may be taken during the senior year after a student has been admitted.

Five-year Bachelor/ MSA Program

This program allows undergraduate full time accounting majors in the College of Business to accelerate the completion of both the bachelor's and master's degrees in Accounting. Students can earn the Master of Science in Accounting degree within five years of entry as an undergraduate. A detailed program of study can be found on p. 348.

Program Prerequisites:

Satisfied after completing the following undergraduate courses: AC 201, AC 202, AC 305, AC 306, AC 309, AC 330, AC 413, AC 419 AND FIN 214, with a "B" average or better and no grade below a "C". Program Application and Admission Requirements:

1. Earn an overall GPA of 3.0.
2. Complete the College of Business Graduate Studies application and essays for the MSA program. All application materials should be submitted to the Admissions Office.
3. Forward scores for the Graduate Management Admission Test (GMAT) to the Admissions Office. Students should seek to score 500 or higher on the GMAT.

Applicants may take up to two graduate courses in their senior year. A third graduate course may be taken during the senior year after a student has been admitted.

Five-year Bachelor/MBA and Five-year Bachelor/MSA Programs – Early Acceptance

Students who have achieved a high level of success in their high school academic performance may apply for conditional early acceptance into either program as freshmen. To qualify for this opportunity, applicants typically have earned a high school GPA of 3.5 or higher, and a combined verbal and quantitative sections score of 1200 or higher on the SAT. Once admitted, students must

1. Maintain an overall GPA of 3.3 or higher.
2. Successfully complete an undergraduate degree.
3. Earn a “B” average or better with no grade below a “C” in the prerequisite courses.

A detailed program of study can be found on p. 347.

COLLEGE OF ENGINEERING

Dean S. Hossein Cheraghi

Assistant Dean Richard Grabiec Jr.

The College of Engineering has been preparing students for successful engineering careers for over 50 years. Over that time we have been guided by an operating philosophy that acknowledges that our graduates will play significant roles fundamental to the health of our nation and of our globe. Throughout their careers they and their professional colleagues will advance the technological basis of our nation's economic health, defend our nation, and our way of life with the products of our craft; provide for the improved health and welfare of our citizenry; and improve the quality of life for all humankind—as the engineering profession has always been charged to do. Our graduates assume serious obligations upon beginning their careers.

The faculty is committed to seeing students succeed, with overall excellence in the teaching/learning enterprise being the primary goal. It is the faculty of the College of Engineering that is primarily responsible for developing and maintaining the environment supportive of learning for each student and for encouraging each student to reach for and achieve the highest goals possible.

The Mission of the College of Engineering

The College of Engineering's mission is to provide undergraduate and graduate students an outstanding education in engineering through an environment of individual attention and support, dedicated and qualified faculty who are recognized in their fields, and modern facilities. Our graduates will possess the education and learning skills that enable them to put theory into practice, be professionally responsible engineers, and be leaders within the global community.

The Vision of the College of Engineering

The College of Engineering will be recognized as a premier engineering institution with an emphasis on a contemporary undergraduate education, preferred by undergraduate and graduate students, faculty, prospective

employers and graduate schools nationally and internationally.

The Core Values of the College of Engineering

We support the core beliefs of Western New England University and in particular we value:

Student Centered Learning

Promoting a learning environment based on a student first approach to ensure the success of our students.

Discovery

Contributing to the research, development, dissemination and application of engineering knowledge, integrating theory and practice

Holistic Engineering and Leadership

Providing an active learning pedagogy integrating knowledge across disciplines to cultivate leadership and decision making in solving complex problems to better serve humanity

Responsibility

Demonstrating integrity and accountability in all of our dealings

Ethics and Professionalism

Leading by actions characterized by ethics and professionalism

Teamwork

Providing pedagogy and opportunity for the development of successful teaming skills

Community

Being an active and collaborative part of Western New England University and the local, national and global community

Diversity and Internationalism

Respecting the diversity of human kind, including but not limited to cultural, gender and nationality differences

Continuous Improvement

Demonstrating successful continuous improvement processes of our college and its programs

Programs of Study

The College of Engineering offers curricula leading to the degrees:

Bachelor of Science in Biomedical Engineering (B.S.B.E.)

Bachelor of Science in Electrical Engineering (B.S.E.E.)

Bachelor of Science in Industrial Engineering (B.S.I.E.)

Bachelor of Science in Mechanical Engineering (B.S.M.E.)

Each of the four undergraduate degree programs are professionally accredited by the Engineering Accreditation Commission of ABET Inc., 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, (410) 347-7700.

The faculty realizes the typical tentativeness with which an entering freshman declares a major upon entry. Accordingly, all of the curricula share a common set of courses during the first two semesters of study. Students utilize this time to explore potential career directions and make informed decisions, declaring a degree objective before beginning their second year studies.

All curricula are based on mathematics and the basic sciences coupled with engineering sciences, with specialization beginning in the second year. Each program is structured to build upon preceding coursework, with successively more challenging courses, culminating with a capstone design experience during the fourth year. Each program is intended to prepare students for either entry into professional practice, or advanced formal studies. With 40% of required coursework taught by faculty in the College of Arts and Sciences, each program also integrates liberal and professional learning to provide the balance needed by modern engineering practitioners.

The College of Engineering believes that engineering as a discipline is better learned than taught, and that much of the maturing of students into engineers comes through personal hands-on experiences acquired in laboratory, project, and formal internships at industry sites throughout the Northeast. Through these avenues modern practice plays vital roles in the student's education. Senior projects are very often suggested by, and sometimes conducted in association with, the technical community. The programs are quite flexible in arranging for joint industry-student efforts, and in accommodating the needs of full-time and part-time students. In addition, undergraduate research projects are arranged by the faculty of the College of Engineering.

While undergraduate courses are occasionally offered in the evenings, it is not possible to complete an entire degree program in the evening.

Transfer Agreements

Recognizing the important role of community colleges in the overall system of higher education and of cooperation among four-year colleges and universities with different emphases, the College of Engineering is making every effort to coordinate its programs with those of other institutions offering programs, such as engineering science, that provide the first two years of engineering study.

To date, joint admission agreements and/or transfer advising guides have been developed with the following community colleges: Greenfield, Holyoke, Berkshire, Hudson Valley, Manchester Technical, Quinsigimond, Asnuntuck, and Springfield Technical. Other agreements are being developed.

Department Chairs and Faculty

Department of Biomedical Engineering
Professor Judy Cezeaux, Chair

Assistant Professors Robert Gettens, Michael Rust

Department of Electrical and Computer Engineering
Associate Professor Neeraj Magotra, Chair

Professors Kourosh Rahnamai, Ronald Musiak
Associate Professors John Burke, James Moriarty, Steven Northrup

Professors Emeriti William Bradley, Stephen Crist, Rene Dube, James Masi

Department of Industrial Engineering and Engineering Management
Professor Thomas Keyser, Chair

Professors S. Hossein Cheraghi, Richard Grabiec, Eric Haffner

Associate Professor Abdul Kamal

Assistant Professor Julie Drzymalski

Professor Emeritus J. Byron Nelson

Department of Mechanical Engineering
Associate Professor Richard Mindek, Chair

Professors Said Dini, Mohammed Khosrowjerdi

Associate Professors Bart Lipkens, Glenn Vallee, Mary B. Vollaro

Professors Emeriti Robert Azar, Wellen Davison, Alan Karplus, Walter Presz, Henry Sundberg, Richard Veronesi

Requirements

A common curriculum for the first two semesters is provided for all engineering students. Since the actual time required for completion of the curriculum will depend on the individual student's ability and prior preparation, personal consultations with engineering faculty advisors permit students to participate in both the determination of their current status and the planning and scheduling of further course work.

Course prerequisites are used to identify the competencies required for enrollment in a course. As a result, enrollment in any course is contingent upon successful completion of all course prerequisites. A student may, however, petition the course instructor for a waiver of prerequisite(s). Applications for requesting an exception are available in the dean's office. The application must be completed and signed by the student, faculty instructor, chair of the department that offers the course, and the Dean of Engineering.

Nonbusiness majors can apply no more than 25% of business coursework to their graduation requirements.

Mathematical Analysis

MATH 133 (Calculus I) and MATH 134 (Calculus II) have been designated as the two mathematics foundation courses by the College of Engineering. A minimum grade of C- is required in MATH 133 in order to be allowed to continue into MATH 134. Furthermore, a minimum grade of C- is required in MATH 134 and an average grade of C or better is required in the mathematics foundation courses in order to proceed into the sophomore level engineering courses (ME 204 and EE 205).

Freshman Year

Fall Semester
ENGL 132 English Composition I

ENGR 102	First Year Engineering Seminar
ENGR 103	Introduction to Engineering
MATH 133	Calculus I
PEHR 151	Personal Health and Wellness
PHYS 133	Mechanics
<i>Spring Semester</i>	
ENGL 133	English Composition II
ENGR 105	Computer Programming for Engineers
ENGR 110	Data Acquisition and Processing
MATH 134	Calculus II
PEHR 153-199	Lifetime Activity Series
PHYS 134	Electricity and Magnetism

Individual curricula in biomedical engineering, electrical engineering, industrial engineering, and mechanical engineering are given in the major programs section of the Catalogue.

Design Experience

In the freshman year, students are introduced to engineering design in the Introduction to Engineering courses. Sophomore and junior courses and laboratories provide progressively more sophisticated design experiences within the student's discipline. All programs culminate in a capstone senior design project course in which students work on projects under the supervision of a faculty advisor. Topics for some projects are supplied by industry. Students who select one of these topics have the opportunity to work with the industrial sponsor in an actual engineering setting.

Electives (Undergraduate Programs)

General Education electives supplement the engineering student's technical program. These electives must be selected in such a way that all General Education "perspectives of understanding" requirements are covered. In addition, technical, design, and general electives provide the opportunity for specialization within a chosen field. An assigned departmental faculty advisor must approve selection of electives from Engineering, Arts and Sciences, or Business.

Learning Beyond the Classroom (Undergraduate Programs)

The University is committed to making learning beyond the classroom (LBC) a significant element of every full-time undergraduate students' academic program and personal experience. It is envisioned that through the process of applying their classroom learning to their experiences in the workplace, in the community, on the playing fields, and across the campus, our students will not only enhance their learning, but will also begin to connect their learning more directly to the world in which they live. For these reasons, all students will be required to complete one LBC experience for every two years of full-time study.

STRATEGIC INITIATIVES

The Center for Strategic and Academic Initiatives' primary goal is international recruitment of students and development of undergraduate and graduate degree programs (traditional, professional, online, alternative/intensive scheduling, on-site, off site, graduate full- and part-time interdisciplinary, "boutique" in nature, in-house or out-sourced, etc) as well as noncredit/certificate programs. The Center will serve as an incubator to implement credit and noncredit programs and degrees that the University determines should be launched to take advantage promptly of opportunities that are sought out or that present themselves and that permit the University to reach new audiences. In addition, the Center and the Office of Professional Development Programs is responsible for the development of new continuing education and noncredit opportunities to meet employer, employee, professional and personal development needs within our region. This initiative may include the development and implementation of new graduate programs, and the development of other entrepreneurial opportunities.

Professional Development

Western New England University provides opportunities for professional development through conferences, workshops, seminars, and noncredit programming. Custom-designed, on-site training is also available. These programs are designed to help professionals quickly update and acquire the job-related skills and information they need.

Professional Development Programs

The Office of Professional Development offers an array of professional development/education programs. Our conferences, seminars, noncredit courses, and certificate programs are offered through public formats and onsite at organizations. These programs are designed to help professionals quickly update or acquire the job-related skills and information that will enhance their ability to be successful in their chosen professions.

All of our onsite programs can be customized to meet your organization's needs. We welcome the opportunity to meet with you to discuss your specific training needs and design a

proposal for your review. If meeting space or computer resources is an issue, let us know and we will be happy to provide these services at our Springfield, Massachusetts campus.

For brochure requests and complete details on all of our professional development programs, call us at 1-800-660-9632 or visit our website, www.wne.edu/pd

Current Program Offerings

- Annual Tax Institute and Workshops
- Fundamentals of Engineering/Engineering-in-Training (FE/EIT) Review Course
- Law Enforcement Seminars
- Project Management Forum
- Regional Social Work Conference and Workshops

Annual Conferences and Certificate Programs

Regional Social Work Conference (29 years)

This conference is an all-day event comprised of 40 plus individual workshops. These workshops vary in topics ranging from AIDS and domestic abuse to professional burnout and new policies. The conference also provides a forum for information exchange on contemporary issues and networking opportunities for human service professionals throughout New England.

Tax Institute (49 years)

The Tax Institute provides high quality written and computer materials, oral presentations from expert speakers on detailed tax structuring and planning techniques and their practical applications. It addresses timely topics and updates based on changes or developments in the tax law with a focus on the planning opportunities and pitfalls which may result from those changes.

Professional Development Workshops and Trainings

Fundamentals of Engineering/Engineering-in-Training (FE/EIT) Review Course

This 10-session course reviews fundamental engineering subjects, mathematics, and

basic sciences to prepare engineers for the General Fundamentals of Engineering Exam. University faculty review concepts and solve problems similar in type and complexity as those encountered on the exam. This course is offered in January in preparation for the spring exam.

Project Management Forum

In collaboration with the SNEC PMI Chapter, the Western Massachusetts Project Management Forum hosts monthly forum meetings on the Western New England University campus for project managers. Creative discussions and guest speakers provide a platform for all area project managers to network, and share ideas, strategies, and solutions to current challenges in the field of project management.

To participate in this forum, contact Joseph Cacciola via email at Jcacciola@MassMutual.com.

Social Work Workshops

Western New England University's Bachelor of Social Work program, Office of Professional Development, and Social Work Advisory Council sponsor professional development workshops on current issues in the human service field. These workshops have served the needs of human service professionals from Massachusetts and surrounding states by providing a minimum of five programs yearly for CEUs for social workers, license mental health, CADAC, Marriage and Family Therapist, and PDPs for educators.

For detailed information, visit our website, www.wne.edu/pd or call 1-800-660-9632.

UNDERGRADUATE DEGREE PROGRAMS

ACCOUNTING MAJOR

College of Business

General Information

The course of study for accounting majors is designed to provide the professional education needed for careers in private industry, government, public accounting, or not-for-profit organizations. The combination of training in accounting, business subjects, and the arts and sciences prepares the student for potential advancement to positions of managerial responsibility.

Students desiring to prepare for the CPA examination are advised to consult the Accountancy Board of the state of their choice to ensure that they will be able to meet the educational requirements of that jurisdiction. Students have the opportunity to continue in a Master of Science in Accounting program designed to meet the 150-hour academic requirement that has been adopted by many state Accounting Boards. Accounting majors who desire preparation to meet the requirements of a particular state may, if necessary, modify their program of study in conference with, and approval of, their department chair.

Career Preparation

In order to help students understand careers available to Accounting majors, faculty in the Accounting department designed activities to guide students from career exploration through career implementation. Examples of some of these include:

- a) Career Exploration in the freshman year is accomplished in First Year Seminar where students are introduced to accounting career opportunities.
- b) Career Investigation in the sophomore year courses includes classroom assignments in AC 201 and AC 202 and Meet the Firms Night.
- c) Career Determination in the junior year engages students in résumé and cover letter writing and mock interviews.

- d) Career Implementation in the senior year includes examination of professional certifications.

Career Opportunities

Accounting majors find positions in national and regional public accounting, corporate and financial accounting, taxation, internal audit, and governmental and nonprofit accounting. The major provides an excellent foundation for legal careers and advanced business degrees.

Faculty

Professors: R. Loring Carlson, John Coulter, May H. Lo

Associate Professor: Lori Holder-Webb

Assistant Professor: Huijin (Ken) Guo

Professional Educator: Stephen Sugermeyer

Program Learning Goals

Having completed a major in Accounting, the student will have the ability to:

1. Understand the accounting conceptual framework as it relates to the measurement and reporting of financial information.
2. Understand the use of accounting information in the planning, controlling, and decision-making processes in organizations.
3. Understand internal control objectives and auditing standards and practices.
4. Understand the basic concepts of federal taxation.
5. Understand issues associated with the design and implementation of accounting information systems.

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (83 credit hours)
— plus —
2. Required Accounting courses (21 credit hours)
AC 305 Financial Reporting II
AC 306 Financial Reporting III

AC 309	Cost Accounting
AC 330	Accounting Information Systems
AC 407	Financial Reporting IV
AC 413	Fundamental Concepts of Taxation
AC 419	Auditing and Assurance Services — plus —
3. Other required courses (6 credit hours)	
COMM 320	Small Group Communication — or —
COMM 340	Business Communication
EC 311	Money and Banking — plus —

4. Electives (12 credit hours)	
BUS xxx	Business Elective (3 cr.)
NBEL xxx	Non-Business Electives (9 cr.)

Total credit hours required for graduation—122.

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year.

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are as follows: all AC courses as well as FIN 214.

MATH 123	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR) — or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/>
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Spring Semester

ENGL 133*	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR) — or —	
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
COMM 100	Principles of Communication (BUSR)	3
MAN 101	Management and Organizational Behavior (BUSR) — or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PSY 101	Introduction to Psychology (BUSR) — or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/>
		16

Suggested Sequence of Courses

- Notes:
 MR Major Requirement
 GUR General University Requirement
 BUSR College of Business Requirement

Freshman Year		Credit Hours
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132*	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I — or —	
		<hr/>
		15

Sophomore Year **Credit Hours**

<i>Fall Semester</i>		
AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
BL 201	Introduction to Business Law (BUSR)	3
		<hr/>
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54 Undergraduate Academic Programs

<i>Spring Semester</i>			NBEL xxx	Non-Business Elective (GUR)	3
AC 202	Managerial Accounting (BUSR)	3	BUS xxx	BUS Business Elective (MR)	3
BIS 220	Introduction to Business Statistics (BUSR)	3	LAB/NSP xxx	Natural Science Perspective (GUR)	3
FIN 214	Introduction to Finance (BUSR)	3			3
EC 112	Principles of Economics II (BUSR)	3			15
MAN 240	Business and Society — or —	3	<i>Spring Semester</i> AC 413	Fundamental Concepts in Taxation (MR)	3
PH 211	Business Ethics (BUSR)	3	BUS 450	Business Strategy (BUSR)	3
LBC 2xx	Learning Beyond the Classroom	3	AC 407	Financial Reporting IV (MR)	3
		15	NBEL xxx	Non-Business Elective (GUR)	3
			NBEL xxx	Non-Business Elective (GUR)	3
Junior Year	Credit Hours		LBC 4xx	Learning Beyond the Classroom	3
<i>Fall Semester</i>					15
BUS 301	Managing the Established Enterprise (BUSR)	3			
	—or—				
BUS 312	Integrated Business Operations with SAP				
COMM 320	Small Group Communication (MR)				
	—or—				
COMM 340	Business Communication (MR)	3			
AC 305	Financial Reporting II (MR)	3			
AC 309	Cost Accounting (MR)	3			
LAB xxx	Natural Science Perspective (GUR)	3			
		15			
<i>Spring Semester</i>					
EC 311	Money and Banking (MR)	3			
AC 419	Auditing and Assurance Services (MR)	3			
AC 306	Financial Reporting III (MR)	3			
CUL xxx	Cultural Perspective (GUR)	3			
ILP xxx	Integrated Liberal and Professional Perspective (GUR)	3			
		15			
Senior Year	Credit Hours				
<i>Fall Semester</i>					
AC 330	Accounting Information Systems (MR)	3			
BIS 310	Quality and Operations Management (BUSR)	3			
	—or—				
BIS 312	Quality and Operations Management with SAP				

ARTS AND ENTERTAINMENT MANAGEMENT MAJOR

College of Business

General Information

The Arts and Entertainment Management program emphasizes the business side of this creative industry. Students majoring in Arts and Entertainment Management engage in a course of academic study that prepares them for a management career in creative and cultural organizations. The Arts and Entertainment Management major appreciates the unique blend of creative aesthetics and business sensibilities requisite to success in this industry and is able to mobilize resources to meet the mission, goals, and objectives of both the arts or entertainment organization and its stakeholders. The Arts and Entertainment Management program provides opportunities for students to develop the knowledge and skills they need to manage in for-profit or nonprofit creative and cultural environments. Students are provided with industry-based learning opportunities and are actively involved in industry-based projects both in the classroom and beyond.

Career Preparation

In order to help students understand careers available to Arts and Entertainment Management majors, faculty in the Department of Management design activities to guide students from career exploration through career implementation. Examples of some of these include:

- a) Career Exploration in the freshman year is accomplished through a speaker series.
- b) Career Investigation in the sophomore year includes classroom assignments in AEM 250 (Managing A and E Organizations) that look at opportunities in arts and entertainment industry segments.
- c) Career Determination in the junior year is accomplished using projects in AEM 350 (A and E Practicum).
- d) Career Implementation in the senior year is addressed through instruction in networking and arts and entertainment job search skills in AEM 465 (Seminar in A and E Management) combined with internships and field experiences.

Career Opportunities

The Arts and Entertainment Management major is prepared to assume positions of responsibility in a wide variety of arts and entertainment organizations in the private and public sectors. Graduates may work in the following settings: arts festivals, arts foundations, art galleries and historical museums, community arts centers or community theaters, dance companies, educational institutions, film and television companies, opera companies, orchestra companies, regional theaters, and television stations.

Faculty

Professors: William Ferris, Julie Siciliano

Associate Professors: Lynn Bowes-Sperry, Jeanie Forray

Assistant Professors: Lynn Bakstran, Melissa Knott

Professional Educator: John Greeley

Program Learning Goals

Having completed a major in Arts and Entertainment Management, the student will have the ability to:

1. Apply managerial competencies to arts and entertainment organizations.
2. Understand internal and external factors that shape arts and entertainment in a culture.
3. Achieve competency in arts and entertainment marketing including fundamental aspects of arts and entertainment products, markets, consumer research, sponsorship, and promotion.
4. Achieve competency in arts and entertainment finance including key elements of budgeting, accounting, public/private financing, and revenue development.
5. Achieve competency in legal aspects of arts and entertainment including state/federal legislation, liability, risk management, contracts, intellectual property, and collective bargaining.
6. Achieve competency in the economics of arts and entertainment including

fundamental concepts of supply and demand, economic forecasting, and economic impact assessment.

7. Understand the governance and regulation of arts and entertainment organizations.
8. Understand the key elements of ethical behavior in arts and entertainment organizations including consideration of both personal and professional ethical systems in arts and entertainment organization management.

Practicum, Internship, and Non-Profit Board Field Experience Options

Students majoring in Arts and Entertainment Management are afforded three different kinds of opportunities to apply their classroom learning to field experiences.

All Arts and Entertainment Management majors complete a three-credit Practicum course that provides students with the opportunity to plan, organize, and lead various elements of on-campus arts or entertainment-related programming. This may include productions of the Stageless Players, exhibitions at the campus Art Gallery, or similar. Students gain hands-on experience in project management, event operations, personnel management, promotion, and communications while working directly under the supervision of Western New England University staff. The course combines classroom instruction with on-campus arts or entertainment experience.

Arts and Entertainment Management majors who meet the University's academic requirements for internships (junior standing and grade point average of 2.5 or above overall and in the major) are eligible for the three-credit Internship in Arts and Entertainment Management.

Arts and Entertainment Management majors with a grade point average of 3.0 and above are eligible to apply for the Non-Profit Board Field Experience program. The Non-Profit Board Field Experience is a two-semester activity designed to provide outstanding business students with exposure to the types of decisions made by boards of directors in non-profit organizations. Placement for Arts and Entertainment Management majors is with non-profit arts or entertainment organizations.

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (80 credit hours) See p. 42.

—plus—

2. Required Arts and Entertainment Management, Management, and Business Law Courses (21 credit hours)

AEM 250 Managing Arts and Entertainment Organizations

BL 350 Business Law for Arts and Entertainment Management

MAN 201 Interpersonal Skills for Managing

MAN 323 Human Resource Management

AEM 350 Arts and Entertainment Practicum

AEM 355 Arts and Entertainment Venue Operations

AEM 465 Seminar in Arts and Entertainment Management

—plus—

3. Other required courses (3 credit hours)

EC 350 Economics of Arts and Entertainment

—plus—

4. Electives (15 credit hours)

AEM 480 Internship (3 cr.)

—or—

Business Elective (3 cr.)

Business Elective (3 cr.)

Non-Business Electives (9 cr.)

* *Students who wish to specialize in Music, Television/Film, Theater, or Visual Arts should consult with their advisor in order to allocate non-business electives appropriately.

Total credit hours required for graduation - 122.

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year.

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied.

Courses to be included in computing the 2.0 minimum average in the major are as follows:

All AEM and BL courses, MAN 201 and 323, EC 350, and BUS 450.

Suggested Sequence of Courses

Freshman Year

Fall Semester

BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	
	—or—	
MATH 123	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR)	
	—or—	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 16

Spring Semester

ENGL 133	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	
	—or—	
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
COMM 100	Principles of Communication (BUSR)	3
MAN 101	Management and Organizational Behavior (BUSR)	
	—or—	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	—or—	

SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/> 16

Sophomore Year

Fall Semester

AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
AEM 250	Managing Arts and Entertainment Organizations (MR)	3
		<hr/> 15

Spring Semester

AC 202	Managerial Accounting (BUSR)	3
BIS 220	Introduction to Business Statistics (BUSR)	3
FIN 214	Introduction to Finance (BUSR)	3
EC 112	Principles of Economics II (BUSR)	3
BL 350	Business Law for Arts and Entertainment Management (BUSR)	3
LBC 2xx	Learning Beyond the Classroom	
		<hr/> 15

Junior Year

Fall Semester

BUS 301	Managing the Established Enterprise (BUSR)	3
	—or—	
BUS 312	Integrated Business Operations with SAP	
MAN 201	Interpersonal Skills for Managing Non-Business Elective (BUSR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
MAN 240	Business and Society (preferred for Arts and Entertainment majors)	
	—or—	
PH 211	Business Ethics (BUSR)	3
LAB xxx	Natural Science Perspective (GUR)	3
		<hr/> 15

Spring Semester

NBEL xxx	Non-Business Elective (BUSR)	3
MAN 323	Human Resource Management (MR)	3
AEM 350	Arts and Entertainment Practicum (MR)	3
CUL xxx	Elements of Culture Requirement (GUR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR)	3
		<hr/> 15

Senior Year

Fall Semester

BL 308	Labor Management Relations (MR)	3
BIS 310	Quality and Operations Management (BUSR)	3
	—or—	
BIS 312	Quality and Operations Management with SAP	
AEM 355	Arts and Entertainment Venue Operations (MR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
		<hr/> 15

Spring Semester

BUS 450	Business Strategy (BUSR)	3
EC 350	Economics of Arts and Entertainment (BUSR/MR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
AEM 465	Seminar in Arts and Entertainment Management (MR)	3
AEM 480	Arts and Entertainment Management Internship (MR)	
	—or—	
BUS xxx	Business Elective (MR)	3
LBC 4xx	Learning Beyond the Classroom	
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Specialization

Arts and Entertainment Management students may elect to specialize in one of four areas by completing 12 credit hours of nonbusiness elective courses in Music, Television/Film, Theater, or Visual Arts. While the scheduling

of particular courses remains the purview of the listing department in the College of Arts and Sciences, potential specialization courses include:

Music

MUS 101	Music Appreciation
MUS 102	The Art of Singing
MUS 110	Beginning Guitar
MUS 120	American Popular Music
MUS 141-142	College Singers
MUS 210	Intermediate Guitar
MUS 221	Curtain Up! American Musical Theater
MUS 230	The Music of Social Protest
MUS 240	World Music
MUS 151-152	Campus Chorus
MUS 161-162	Pep Band
MUS 181-182	Concert Band
MUS 190	Special Topics in Music
MUS 201	Basic Music Theory and Composition
MUS 250-251	CMSS Individualized Music Instrument Instruction
MUS 290	Special Topics in Music
MUS 331	Rock and Roll: 1950-1990
MUS 390	Special Topics in Music

Television/Film

COMM 205	Mass Communication
COMM 241	Video Production I
COMM 250	Video Production II
COMM 251	TV Broadcasting
COMM 352	TV Broadcasting II
FILM 210	Mass Media in Film
FILM 320	Introduction to Cinema Production
FILM 321	Introduction to Screenwriting

Theater

THTR 101	Acting I
THTR 110	Theater Appreciation
THTR 151-152	Stageless Players
THTR 201	Acting II
THTR 220	Improvisational Comedy I
THTR 221	Improvisational Comedy II
THTR 290	Special Topics in Theater
THTR 390	Special Topics in Theater

Visual Arts

ART 101	Art Appreciation
ART 105	Drawing I
ART 116	Life Painting with Volumes of Color
ART 118	Introduction to Jewelry Making
ART 120	Art of Hand Papermaking I
ART 201	Survey of Western Art I

ART 202	Survey of Western Art 11
ART 212	London through the Ages
ART 215	Intermediate Drawing
ART 218	Paper as Fiber Art
ART 220	Art of Hand Papermaking II
ART 225	Impressionism
ART 230	Islamic Art & Architecture
ART 240	2-D Art
ART 250	3-D Art
ART 290	Special Topics in Art

BIOLOGY MAJOR

College of Arts and Sciences

General Information

The goal of the Biology major is to provide students with the information and skills necessary to function in jobs or to obtain the undergraduate background necessary for more advanced training and education at the graduate level. The purpose in either case is employment in a biologically oriented field or the professions.

Career Opportunities

Biology graduates are employed as laboratory technicians, product analysts, quality control technicians, and forensic scientists. Others are in research, teaching, or have gone on to graduate or medical schools.

Faculty

Professor: Lorraine Sartori

Assistant Professors: Dawn E. Holmes, Anna Klimes, Kathryn Lipson, Jessica Rocheleau, Burt Rosenman

Professional Educator: Karl Sternberg

Program Objectives:

1. To demonstrate knowledge of basic structure and functioning of cells.
2. To understand the basic features of the synthetic theory of evolution.
3. To understand basic ecological principles.
4. To understand the principles and mathematical analysis of Mendelian and non-Mendelian inheritance.
5. To understand the structure and function of nucleic acids and molecular controls.
6. To understand the structures and functions of animals.
7. To achieve additional understanding in population biology, organismic biology, or cellular and molecular biology.
8. To develop quantitative problem solving skills and data analysis.
9. To understand the structure and physiology of plants.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

1. Required biology courses (35 credit hours)

BIO 107 General Biology I
 BIO 117 General Biology Lab I
 BIO 108 General Biology II
 BIO 118 General Biology Lab II
 BIO 201 Plant Biology
 BIO 213 Ecology
 BIO 310 Cell Biology or BIO 312 Developmental Biology
 BIO 306 Genetics
 BIO 455 Evolution
 Eight additional semester hours of 2xx-4xx BIO courses;

2. Required chemistry courses (16 credit hours)

CHEM 105/106 General Chemistry I & II
 CHEM 209/210 Organic Chemistry I & II
 CHEM 219/220 Organic Chemistry Laboratories I & II

3. Twelve to fifteen additional credit hours in math, physics, and statistics courses

MATH 109 Pre-calculus Mathematics
 — or —
 MATH 123 Calculus I for Management, Life and Social Sciences
 PHYS 123 and PHYS 124 Physics of the Life Sciences I and II
 — or —
 PHYS 101 Elements of Physics
 — and —
 PHYS 15x
 MATH 120 Introductory Statistics for the Arts and Sciences

Suggested Sequence of Courses

Notes: The suggested sequence of courses in years two, three, and four is an example only. Some offerings for these years will alternate and the exact sequence will require consultation with the faculty and deans.

Notes:

* Is a prerequisite
 ** Has a prerequisite
 MR Major Requirement
 GUR General University Requirement

A&SR College of Arts and Sciences Requirement

Freshman Year

Fall Semester

BIO 107	General Biology I	3
BIO 117	General Biology Lab I	1
CHEM 105	General Chemistry I	4
ENGL 132	English Composition I	3
MATH 109	Pre-Calculus Math	3
LA 100	First Year Seminar	2
		<hr/>
		16

Spring Semester

BIO 108	General Biology II	3
BIO 118	General Biology Lab II	1
CHEM 106	General Chemistry II	4
ENGL 133	English Composition II	3
MATH 120	Introductory Statistics	3
PEHR 151	Personal Health and Wellness	1
		<hr/>
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Sophomore Year

Fall Semester

BIO 213	Ecology	4
CHEM 209	Organic Chemistry I	3
CHEM 219	Organic Chemistry Lab I	1
WIC 2xx	Writing Intensive course (A&SR)	3
HIST xxx	History	3
PEHR 153-199	Lifetime Activity	1
		<hr/>
		15

Spring Semester

BIO 201	Plant Biology	4
CHEM 210	Organic Chemistry II	3
CHEM 220	Organic Chemistry Lab II	1
CS xxx	Computer Competence Requirement (GUR)	3
GEN xxx	General Elective	3
		<hr/>
		14

Junior Year

Fall Semester

BIO 2xx/4xx	BIO Elective	4
PHYS 101	Elements of Physics	3
	— or —	
PHYS 123	Physics of the Life Sciences I	(4)
CUL 2xx	Cultural Studies	3
ILP xxx	Integrated Liberal and Professional	3
GEN xxx	General Elective	3
		<hr/>
		16 (17)

Spring Semester

BIO 310	Cell Biology	4
	— or —	
BIO 312	Developmental Biology	4
PHYS 15x		
	— or —	
PHYS 124	Physics of the Life Sciences II	3(4)
ART xxx	Aesthetic Perspective	3
PH xxx	Ethical Perspective	3
GEN xxx	General Elective (A&SR)	3
		<hr/> 16(17)

Senior Year*Fall Semester*

BIO 306	Genetics	4
SBP xxx	Soc Sci Perspective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 16

Spring Semester

BIO 455	Evolution	3
BIO 2xx/4xx	BIO elective	4
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 14
		<hr/> 122

Premedical Students:

Biology majors intending to apply to medical school should contact the chairperson of the department for additional information concerning sequence of courses.

**BIOMEDICAL
ENGINEERING MAJOR****College of Engineering****General Information**

Biomedical engineers have the unique ability to serve as a bridge between engineering and medicine. The rapid advancement of high technology into all medical specialties has increased the demand for engineers who have a depth of knowledge in both engineering and physiology. Biomedical engineers make significant contributions to society by improving patient care and ultimately improving the quality of life for others.

Western New England University provides Biomedical Engineering students with a solid engineering background and an in-depth understanding of human physiology, anatomy, and biology necessary to be a successful biomedical engineer. The curriculum is designed for maximum flexibility, allowing students to choose elective courses that are of most interest. In the junior and senior year, students choose four “sequence electives,” two technical electives, as well as a series of five general education courses that fulfill the University’s requirement for a perspective on ethics, history, aesthetics, integrated liberal and professional learning, cultural studies, and social and behavioral issues. Students are exposed to the major physiological systems during each of the final four semesters through laboratory work, courses, and through the capstone senior design project.

The program leading to the B.S.B.E. degree is accredited by the Engineering Accreditation Commission of ABET, Inc. 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, 410-347-7700. Accreditation affirms our quality.

Career Opportunities

The Biomedical Engineering program at Western New England University is designed to prepare students for either immediate employment or for admission to graduate or medical school. Demand for biomedical engineers is growing as more and more technology is finding its way into all branches of medicine. Since the field of biomedical engineering is so broad, many of our graduates choose to specialize their knowledge in

graduate or professional school by pursuing an M.S., Ph.D., or M.D. degree. Our graduates are working in the medical instrumentation and device industry, pharmaceutical companies, biotechnology companies, research facilities, and hospitals.

Faculty

Professor: Judy Cezeaux

Assistant Professors: Robert Gettens, Michael Rust

Mission

The mission of the Biomedical Engineering Program is to provide students with a supportive environment that facilitates learning to solve engineering problems related to medicine and biology in an ethically responsible manner.

The Biomedical Engineering program is committed to excellence in student learning. Graduates of the program will be problem solvers, able to apply engineering principles to the interface between living and non-living systems. The faculty and staff of the BME program use their diverse background in teaching, research, and industry to prepare students to be successful leaders in biomedical engineering as they move into the workforce, graduate school or professional school.

Defining Characteristics

The Biomedical Engineering program

- provides students opportunities to learn and apply core engineering principles to solve problems related to medicine or biology, emphasizing the need for interdisciplinary approaches.
- gives students opportunities to apply theory with practice-oriented laboratory, industrial or clinical experiences.
- produces engineers who can communicate well at all levels within an organization.
- delivers a dynamic curriculum that is continuously updated with input from practitioners and researchers in the field of biomedical engineering.
- promotes biomedical engineering as a career choice.

- serves both the biomedical engineering community and society.

Program Educational Objectives

Graduates of the Western New England University Biomedical Engineering Program will

- function successfully in a variety of environments including industry, hospitals/clinics, government, graduate school or professional school.
- function as productive team members and leaders to solve engineering problems, including those at the interface of medicine and engineering.
- have an awareness of safety, ethics, sustainability and/or societal concerns in their professional endeavors.
- communicate complex technical concepts, both in written and oral communication, to diverse audiences.
- be actively engaged in life-long learning such as participating or leading in relevant professional societies, continuing their education, or attending relevant workshops, meetings or seminars.

Program Outcomes

The outcomes for the Biomedical Engineering program were chosen so that graduates will be prepared to meet the program objectives. Thus, graduates of the biomedical engineering program will have

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- an ability to function on multidisciplinary teams;
- an ability to identify, formulate, and solve engineering problems;

- an understanding of professional and ethical responsibility;
- an ability to communicate effectively;
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- a recognition of the need for, and an ability to engage in life-long learning;
- a knowledge of contemporary issues;
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Common Core

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
ER	Engineering Requirement

Freshman Year Credit Hours

<i>Fall Semester</i>		
ENGL 132*	English Composition I (GUR/ER/MR)	3
ENGR 102*	First Year Engineering Seminar (GUR/ER/MR)	1
ENGR 103*	Introduction to Engineering (GUR/ER/MR)	4
MATH 133*	Calculus I (GUR/ER/MR)	4
PEHR 151	Personal Health and Wellness (GUR)	1
PHYS 133*	Mechanics (GUR/ER/MR)	4
		<hr/> 17

Spring Semester

ENGL 133**	English Composition II (GUR/ER/MR)	3
ENGR 110*	Data Acquisition and Processing (GUR/ER/MR)	2
MATH 134** *	Calculus II (GUR/ER/MR)	4
ENGR 105*	Computer Programming for Engineers (GUR/ER/MR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
PHYS 134** *	Electricity and Magnetism (GUR/ER/MR)	4
		<hr/> 17

Sophomore Year Credit Hours

Fall Semester

ME 204** *	Engineering Mechanics I (ER/MR)	3
BIO 107*	General Biology I (MR) ²	3
CHEM 105** *	General Chemistry I (ER/MR)	4
EE 205** *	Electrical Engineering I (ER/MR)	4
MATH 236** *	Differential Equations (ER/MR)	3
		<hr/> 17

Spring Semester

BME 201* **	Foundations of Biomedical Engineering (MR)	3
BME 202** *	Biomedical Systems (MR)	3
CHEM 106** *	General Chemistry II (MR)	4
IE 212** *	Probability and Statistics (ER/MR)	3
MATH 235** *	Calculus III (ER/MR)	3
LBC xxx	Learning Beyond the Classroom (GUR)	
		<hr/> 16

Junior Year Credit Hours

Fall Semester

BME 301** *	Engineering Physiology I (MR)	3
BME 305** *	BME Laboratory I (MR)	1
BME 331** *	Bioinstrumentation (MR)	3
MATH 350** *	Engineering Analysis I (MR)	3
	BME Sequence Elective (MR)	3
SBP xxx	Social/Behavioral Perspective (GUR/ER/MR) ¹	3
		<hr/> 16

Spring Semester

BME 302** *	Engineering Physiology II (MR)	3
BME 306** *	BME Laboratory II (MR)	1
BME 340**	Biomaterials (MR)	3
BME 350** *	Biomedical Thermal Systems (MR)	3
	BME Sequence Elective (MR)	3
HIST xxx	Historical Perspective (GUR/ER/MR) ¹	3
		<hr/> 16

Senior Year Credit Hours

Fall Semester

BME 405** *	BME Senior Laboratory (MR)	1
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BME 437** *	Senior Design Projects I (MR)	3
BME 451**	Biomechanics (MR)	3
	BME Sequence Elective (MR)	3
	BME Technical Elective (MR)	3
PH xxx	Ethical Perspective (GUR/ER/MR) ¹	3
		<hr/> 16
<i>Spring Semester</i>		
BME 440**	BME Senior Design Projects II (MR)	4
	Technical Elective (MR)	3
	BME Sequence Elective (MR)	3
CUL xxx	Cultural Perspective (GUR/ER/MR) ¹	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
LBC xxx	Learning Beyond the Classroom (GUR)	
		<hr/> 16

1. General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied. (See p. 37).

2. Premedical students and those students interested in upper-level biology courses need to take BIO 117 concurrently with BIO 107 and overload to 18 credit hours for this semester. See "premedical students" section below for additional requirements.

The 2.0 required minimum grade point average in the major is based upon all BME courses pursued as a part of the student's degree program.

Biomedical Engineering Technical Elective

Any course labeled BME xxx that is not part of the required curriculum may be used to fulfill the BME technical elective.

Technical Elective

Any 200-level or above math or science course or any 300-level or above engineering course may be used to fulfill the technical elective.

Sequence Electives

In the junior and senior years, there are a series of four "sequence elective" courses for which the students may choose one of the following sequences of courses. Additional sequences are possible but must be made in consultation with the student's academic advisor.

Bioinstrumentation Sequence

BME 332	Biomedical Imaging
CPE 271	Digital Design
BME 431	Advanced Bioinstrumentation
BME 434	Biosensors, BioMEMS, and Nanomedicine

Computer Sequence

CPE 305	Firmware Design for Embedded Systems
CPE 271	Digital Design
CPE 310	Machine and Assembly Language
CPE 462	VHDL: Simulation and Synthesis

Mechanics Sequence

ME 208	Mechanics of Materials
ME 425	Design of Machine Elements
ME 449	Computer Aided Engineering
IE 312	Engineering Economic Analysis

Manufacturing Sequence

IE 326	Production Planning and Control
IE 312	Engineering Economic Analysis
ME 322	Manufacturing Processes
IE 315	Quality Control and Engineering Statistics

Cell and Tissue Engineering Sequence

CHEM 209	Organic Chemistry I with Lab
CHEM 210	Organic Chemistry II with Lab
CHEM 314	Biochemistry with Lab
BME 460	Cell and Tissue Engineering

Biomedical Micro and Nanodevices Sequence

CHEM 211	Analytical Methods with Lab
BIO 203	Microbiology
BME 432	Lab on a Chip
BME 434	Biosensors, BioMEMS, and Nanomedicine

Medical Imaging Sequence

EE 314	Fields and Waves
PHYS 301	Optics

BME 332	Biomedical Imaging
BME 335	Medical Image Processing

Entrepreneurial Sequence

MAN 251	Entrepreneurship and Innovation
BUS 320	Mind Your Own Business
MK 326	Venture Feasibility
BME 471	Product Development and Innovation

Marketing Sequence

MK 200	Principles of Marketing
MK 301	Buyer Behavior
MK 317	Promotional Strategy
BME 471	Product Development and Innovation

Management Sequence

MAN 101	Management and Organizational Behavior
MAN 201	Interpersonal Skills for Managing
MAN 323	Human Resource Management
MAN 370	Project Management — or —
MAN 422	Conflict Resolution

Public Policy Sequence

POSC 102	American National Government (Social/Behavioral Gen. Ed. Req.)
POSC 205	Public Administration
POSC 218	Public Policy
POSC 321	U. S. Congress
POSC 322	U. S. Presidency

Premedical Sequence

BIO 117	General Biology Lab (First semester sophomore year)
BIO 108/118	General Biology II with Lab (Second semester sophomore year)
CHEM 209	Organic Chemistry I with Lab
CHEM 210	Organic Chemistry II with Lab
CHEM 314	Biochemistry with Lab

Additional courses in Genetics, Cellular Physiology, and Human Anatomy are available through the Cooperating Colleges of Greater Springfield (CCGS).

University-Wide Requirements: A total of five University-wide requirement courses are listed in the Biomedical Engineering curriculum. These courses will be used to satisfy the requirement that all Western New England University students attain a

perspective on: Ethics, History, Aesthetics, Integrated Liberal and Professional Learning, Cultural Studies, and Social and Behavioral issues. In addition to these courses a student is required to have two “learning beyond the classroom” (LBC) experiences that have been summarized with two 1,000-word essays connecting the student’s experience to the student’s profession.

Premedical Students: Biomedical Engineering students intending to apply to medical school are advised to select the premedical elective sequence and seek the advice of their BME advisor and the campus premedical advisor as soon as practical, and take the following courses:

BIO 107/117	General Biology I with Lab
BIO 108/118	General Biology II with Lab
CHEM 209	Organic Chemistry I with Lab
CHEM 210	Organic Chemistry II with Lab
CHEM 314	Biochemistry with Lab

Accelerated Six-year Biomedical Engineering/Law Program

Certain biomedical engineering students have the opportunity to accelerate their attainment of a BS in Biomedical Engineering and a Law Degree. Entrance requirements and standards necessary to maintain a tentative acceptance to the Law School can be found in the “Six-year Biomedical Engineering/Law Program” section of this catalogue.

Students choosing this unique curricular path will need to closely follow a prescribed sequence of courses and should consult closely with their BME advisor. The first two years of study will remain the same as the BME curriculum. The third year will change slightly to accommodate the senior year when the student will take both Engineering and School of Law courses. Some summer Law School courses will be necessary after the fourth year.

Five-Year Bachelor/MBA Program

This program allows undergraduate Biomedical Engineering majors in the College of Engineering to accelerate the completion of the bachelor’s degree in Biomedical Engineering (BSBE) and to earn the master’s degree in Business Administration (MBA) with just one additional year of study.

Five-Year Bachelor/ MSEM Program

This program allows undergraduate Biomedical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Biomedical Engineering (BSBE) and to earn the master's degree in Engineering Management (MSEM) with just one additional year of study.

BUSINESS – BBA ONLINE OPTION FOR ADULTS

College of Business

General Information

The Bachelor in Business Administration (BBA) is a part-time degree completion program for adults. The BBA degree program provides students with broad exposure to the functional areas of business administration. Students will develop functional competency necessary for career advancement.

Students will normally have earned the first 60 credit hours of the Bachelor of Business Administration (BBA) degree while pursuing an associate's degree or the equivalency at another accredited college or university. The Western New England University Bachelor of Business Administration provides the remaining 60 credit hours needed to qualify for a bachelor's degree.

The BBA is an accelerated program. Courses are delivered entirely online and are offered over approximately 20 eight-week terms.

In order to be considered for admission, students must transfer in at least 54 credit hours. Full-time Western New England University students are not eligible to enroll in this program.

Career Opportunities

BBA majors are equipped to advance into positions of increased responsibility in the business world. In addition to seeking career advancement, students are able later to specialize either by entering graduate school or, more typically, by participating in training programs provided by employers.

Faculty

Faculty in this major come from all departments in the College of Business.

Program Learning Goals

Having completed the BBA, the student will have the ability to:

1. Solve business problems by thinking critically and applying principles of effective decision making.
2. Generate, evaluate, and select alternatives consistent with standards of ethical behavior.
3. Perform well on teams, to provide leadership, to contribute and collaborate to achieve team goals.
4. Communicate professionally, to present analyses, recommendations, and plans clearly, in writing.
5. Apply information technology concepts and tools to support business problem solving and decision making.
6. Recognize the dynamic domestic and international factors that shape and transform the global business environment.
7. To understand the fundamental concepts from the business disciplines.

Course of Study

For the BBA major it is assumed that students will transfer to Western New England University with an associate's degree or approximately 60 credits. The complete degree requirements are shown below. Transfer credits will be evaluated and applied to meet the appropriate degree requirements.

Core Requirements (78 credit hours)

Business Courses:		42 Credits
BIS 102	Problem Solving with Business Tools	3
MAN 101	Management and Organizational Behavior	3
AC 201	Financial Reporting	3
MK 200	Principles of Marketing	3
BIS 202	Introduction to Business Information Systems	3
AC 202	Managerial Accounting	3
FIN 214	Introduction to Finance	3
BIS 220	Introduction to Business Statistics	3

BUS 301	Managing the Established Enterprise	3
BL 201	Introduction to Business Law	3
BIS 310	Quality and Operations Management	3
BL 424	Legal Aspects of Human Resource Management	
MAN 323	Human Resources Management	
BUS 450	Business Strategy	3

Non-Business Courses: 36 Credits

ENGL 132/133	English Composition I & II	6
HUM xxx	Humanities Elective	3
MATH xxx	College-level Math (above Algebra)	6
EC 111/112	Principles of Economics I & II	6
PSY 101	Introduction to Psychology — or —	
SO 101	Introduction to Sociology	3
HIST xxx	History Requirement	3
COMM 100	Principles of Communication	3
MAN 240	Business and Society — or —	
PH 211	Business Ethics	3
SCI xxx	Science Requirement — plus —	3

Electives: 42 credit hours

Business Electives	9
Non-Business Electives	24
General Electives	9

Total Credit hours required for graduation—120.

Students must take 33 credit hours of coursework in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University. Courses to be included in computing the 2.0 minimum average in the major are as follows: All MAN and BL courses as well as BUS 301 and BUS 450.

BUSINESS INFORMATION SYSTEMS MAJOR

College of Business

General Information

Business Information Systems professionals use computers and technology to solve business problems in organizations. The field of information systems includes the acquisition, deployment and management of information systems resources. Professionals develop, deploy, and manage applications for planning, operations, and implementation of business strategy in organizations. Consequently, a solid background in different functional areas of business is required.

We prepare students for successful careers in business with emphasis on deployment of Information Systems. We have strong relationships with business technology leaders in the local community who support career preparation through internships and mentoring programs. Our program emphasis is on the role of IS to support the major functional areas of the business. We specifically strive to:

1. Develop students' interpersonal communication and team building skills;
2. Prepare students with Information Technology concepts and essential skills;
3. Provide students with hands-on learning opportunities in the classroom;
4. Incorporate current technologies into our courses by partnering with leading edge technology providers like Microsoft and SAP; and
5. Provide students with experiential learning via projects hosted at local businesses.

Career Preparation

In order to help students understand careers available to Business Information Systems majors, faculty in the BIS department designed activities to guide students from career exploration through career implementation. Examples of some of these include:

- a) Career Exploration in the freshman year is accomplished in First Year Seminar where students are introduced to business information systems career opportunities

- b) Career Investigation in the sophomore year courses includes an assignment to investigate SAP jobs in BIS 202 and guest speakers from the BIS advisory board
- c) Career Determination in the junior year engages students in a mentor plan and interaction with speakers from the BIS advisory board and
- d) Career Implementation in the senior year includes internships

Career Opportunities

Students with BIS degree have the necessary skills for entry level positions in Information Systems careers such as Business Systems Analyst, Data Analyst, Desktop Support Analyst, E-Commerce Analyst, Help desk Data Modeler, Software developer, Systems Analyst, Web developer, Web designer, and IT project management.

The BIS program prepares students for using technology to solve business problems which increase business effectiveness to gain a competitive advantage in the marketplace.

Faculty

Professors: Anil Gulati, Jerzy Letkowski, Marilyn Pelosi

Associate Professors: Tuncay Bayrak, David Russell

Assistant Professor: Bahadir Akcam

Professional Educator: Peter Daboul

Program Learning Goals

Having completed a major in Business Information Systems, the student will have the ability to:

1. Understand major information technologies in a business context:
 - Database management systems
 - Networking, communications, and the Internet
 - Operating systems and computer architectures
2. Learn the role and impact of information technology on organizations:

- Management of information systems
- Information technology as a strategic enabler
- Information technology as a means of supporting management
- 3. Ability to perform in-depth systems analysis including:
 - Feasibility studies
 - The use of modeling tools and concepts
 - The use of cost-benefit analysis
 - The presentation of solutions
- 4. Understand the principles and practice of system development and maintenance in order to:
 - Perform structured design
 - Apply contemporary application development tools and techniques
 - Develop software including coding, testing, and implementation
 - Project Management
- 5. Demonstrate competency in the design and development of multi-user interactive applications and integrating applications with end-user software.

	— or —
BUS xxx	Business Elective (3 cr.)
BIS 3xx/4xx	Elective (3 cr.)
BUS xxx	Business Elective (3 cr.)
NBEL xxx	Non-Business Electives (6 cr.)

Total credit hours required for graduation—122

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year.

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are as follows: all BIS courses or their equivalents.

Suggested Sequence of Courses

- Notes:
- MR Major Requirement
 - GUR General University Requirement
 - BUSR College of Business Requirement

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (83 credit hours) See p. 36
 - plus —
2. Required BIS/IT courses (21 credit hours)
 - BIS 305 Software Design for Business
 - BIS 321 Database Management Systems
 - BIS 413 Data Communication and Networks
 - BIS 417 Systems Analysis and Design
 - BIS 412 Business Intelligence
 - BIS 455 Enterprise Portals Design with SAP
 - plus —
 - CS 102 or IT 102 Introduction to Programming
 - IT 240 Foundations of Web Systems
3. Electives (18 credit hours)
 - BIS 480 Business Information Systems Internship

Freshman Year	Credit Hours
<i>Fall Semester</i>	
BUS 101	First Year Seminar (GUR/ BUSR) 3
ENGL 132*	English Composition I (GUR) 3
MATH 111	Analysis for Business and Economics (GUR/BUSR) 3
	— or —
MATH 123	Calculus I for Management, Life and Social Sciences (GUR/BUSR)
HIST xxx	Historical Perspective (GUR) 3
MAN 101	Management and Organizational Behavior (BUSR)
	— or —
BIS 102	Problem Solving with Business Tools (BUSR) 3
PEHR 151	Personal Health and Wellness (GUR) 1
	16

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Spring Semester

ENGL 133	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	
	— or —	
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
COMM 100	Principles of Communication	3
MAN 101	Management and Organizational Behavior (BUSR)	
	— or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	— or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/> 16

Sophomore Year

Credit Hours

Fall Semester

AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
BIS 220	Introduction to Business Statistics (BUSR)	3
		<hr/> 15

Spring Semester

AC 202	Managerial Accounting (BUSR)	3
CS/IT 102	Introduction to Programming	3
FIN 214	Introduction to Finance (BUSR)	3
EC 112	Principles of Economics II (BUSR)	3
IT 240	Foundations of Web Systems	3
LBC 2xx	Learning Beyond the Classroom	
		<hr/> 15

Junior Year

Credit Hours

Fall Semester

BUS 312	Integrated Business Operations with SAP	3
MAN 240	Business and Society	
	— or —	
PH 211	Business Ethics (BUSR)	3
BL 201	Introduction to Business Law	3
BIS 305	Software Design for Business	3
LAB xxx	Natural Science Perspective (GUR)	3
		<hr/> 15

Spring Semester

BIS 413	Data Communication and Networks (MR)	3
BIS 312	Quality and Operations Management (BUSR)	3
CUL xxx	Cultural Perspective (GUR)	3
BIS 321	Database Management Systems (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective	3
		<hr/> 15

Senior Year

Credit Hours

Fall Semester

BIS 412	Business Intelligence (MR)	3
BIS 417	Systems Analysis and Design (MR)	3
BUS 3xx	Business Elective	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
BIS 3xx	BIS Upper level Elective	3
		<hr/> 15

Spring Semester

BUS 450	Business Strategy (BUSR)	3
BIS 455	Enterprise Portal Design with SAP	3
BIS 480	BIS Internship (MR)	
	— or —	
NBEL xxx	Business Elective (MR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
LBC 4xx	Learning Beyond the Classroom	
		<hr/> 15

CHEMISTRY MAJOR

College of Arts and Sciences

The Chemistry curriculum is designed to provide the student with a solid background in the principles of chemistry, augmented by practical laboratory experience. Skills are acquired through hands-on experience with such techniques as spectrophotometric, electroanalytic, and chromatographic methods.

Career Opportunities

A baccalaureate degree in chemistry provides diverse opportunities for employment or for advanced training in chemistry and related fields. Our graduates are employed as chemical research assistants working in industrial, governmental, or educational settings, as forensic scientists, and as environmental analysts. Many of our graduates pursue advanced degrees in chemistry or related disciplines.

Faculty

Professor: Anne Poirot

Associate Professor: William Macanka

Assistant Professors: Suzanna C. Milheiro,
Isaac Stayton

Chemistry Major Objectives

Upon completing this program, a Chemistry major will be able to:

1. Perform accurate stoichiometric and chemical equilibrium calculations.
2. Predict and explain the reactivity of an organic or inorganic compound from a knowledge of its structure.
3. Assess the thermodynamic and kinetic stability of a chemical system.
4. Propose a reasonable mechanism for an organic or inorganic reaction.
5. Apply basic quantum mechanical concepts to the study of chemical systems.
6. Synthesize and characterize inorganic and organic compounds.
7. Design and perform a qualitative and quantitative analysis of a sample of matter, using both wet and instrumental methods.
8. Plan and execute experiments through the proper use of library resources.
9. Analyze data statistically and assess reliability of results.
10. Communicate effectively through oral and written reports.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements p. 42.

Course of Study

1. Required chemistry courses (40 credit hours)
 - CHEM 105/106 General Chemistry I & II
 - CHEM 209/210 Organic Chemistry I & II
 - CHEM 211 Analytical Methods
 - CHEM 219/220 Organic Chemistry Laboratories I & II
 - CHEM 221 Analytical Methods Laboratory
 - CHEM 312 Instrumental Analysis
 - CHEM 314 Biochemistry
 - CHEM 317/318 Physical Chemistry I & II
 - CHEM 322 Instrumental Analysis Laboratory
 - CHEM 324 Biochemistry Laboratory
 - CHEM 327/328 Physical Chemistry Laboratories I & II
 - CHEM 421 Inorganic Chemistry
 - CHEM 431 Inorganic Chemistry Lab
2. Mathematics and physics courses (19 credit hours)
 - MATH 133/134 Calculus I & II
 - MATH 235 Calculus III
 - PHYS 133 Mechanics
 - PHYS 134 Electricity and Magnetism

The 2.0 required grade point average in the major is based upon all CHEM courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

Notes: The suggested sequence of courses in years three and four is an example only. Some offerings for these years will alternate and the exact sequence will require consultation with

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the faculty and deans.

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

CHEM 105	General Chemistry I (GUR/MR)	4
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 133	Calculus I (GUR/MR)	4
PHYS 133	Mechanics (MR)	4
		<hr/>

Spring Semester

CHEM 106**	General Chemistry II (GUR/MR)	4
ENGL 133**	English Composition II (GUR)	3
MATH 134**	Calculus II (GUR/MR)	4
PEHR 151	Personal Health and Wellness (GUR)	1
PHYS 134	Electricity and Magnetism (MR)	4
		<hr/>
		17

Sophomore Year Credit Hours

Fall Semester

CHEM 209**	Organic Chemistry I (MR)	3
CHEM 211**	Analytical Methods (MR)	3
CHEM 219**	Organic Chemistry Laboratory I (MR)	1
CHEM 221	Analytical Methods Laboratory (MR)	1
MATH 235**	Calculus III (MR)	3
CS xxx	Computer Competence Requirement (GUR)	3
GEN xxx	General Elective	3
		<hr/>

Spring Semester

CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CHEM 312	Instrumental Analysis (MR)	3
CHEM 322	Instrumental Analysis Laboratory (MR)	1
WIC 2xx	Writing Intensive course (A&SR)	3

PEHR 153-199**	Lifetime Activities Series (GUR)	1
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/>
		15

Junior Year Credit Hours

Fall Semester

CHEM 317	Physical Chemistry I (MR)	3
CHEM 327	Physical Chemistry Laboratory I (MR)	1
GEN xxx	General Elective	3
CUL 2xx	Cultural Studies Perspective	3
WIC 3xx	Writing Intensive course (A&SR)	3
		<hr/>
		13

Spring Semester

CHEM 318**	Physical Chemistry II (MR)	3
CHEM 328*	Physical Chemistry Laboratory II (MR)	1
CHEM 314**	Biochemistry (MR)	3
CHEM 324**	Biochemistry Laboratory (MR)	1
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/>
		14

Senior Year Credit Hours

Fall Semester

GEN xxx	General Elective	3
HIST xxx	Historical Perspective (GUR)	3
PH xxx	Ethical Perspective (GUR)	3
GEN xxx	General Elective	3
SBP xxx	Social/Behavioral Science Perspective (GUR)	3
		<hr/>
		15

Spring Semester

GEN xxx	General Elective	3
ARTS xxx	Aesthetics Perspective (GUR)	3
CHEM 421**	Inorganic Chemistry (MR)	3
CHEM431	Inorganic Chemistry Lab (MR)	1
GEN xxx	General Elective	3
GEN xxx	General Elective	2
		<hr/>
		15

COMMUNICATION MAJOR

College of Arts and Sciences

General Information

Students in the communication major are exposed to the fundamental tenets of several aspects of the field, including interpersonal communication, oral communication, verbal and nonverbal communication, organizational communication, intercultural communication, and electronically mediated communication. They also learn about different approaches to research and practice within each field. Students also choose one of four concentrations which will allow them to focus their studies in an area best reflecting their personal interests and professional needs: 1) media theory and production, which emphasizes the production, reception, and interpretation of messages via electronic media as well as the role of media institutions in society; 2) professional communication, which emphasizes the analysis of verbal and nonverbal communication in interpersonal, business, and professional contexts as well as the development of skills to increase efficiency in conveying or interpreting messages in those contexts; 3) journalism, which emphasizes the creation and interpretation of messages in a variety of news media and the development of journalistic ethics and reporting skills; and 4) public relations, which emphasizes the construction of messages for public consumption across media and the development of skills to enhance the efficacy of conveying a message clearly and accurately via mass media institutions.

Career Opportunities

The benefits of a communication major are manifold. Some graduates of the communication major continue their education in graduate school or law school. Others work for television or radio broadcast stations, newspapers, public service organizations, hospitals, insurance companies, public relations firms, political campaigns, and other businesses. Our unique partnership with WAMC Northeast Public Radio enables our best students to write, produce, and broadcast news reports at a national level—an excellent springboard for careers in journalism and broadcasting. Students also have an opportunity to produce professional promotional videos for nonprofit

organizations through the University's Institute for Media and Nonprofit Communication. Regardless of the concentration they choose, our graduates tell us that the communication curriculum has helped them not only to develop their writing and speaking skills, but also to handle specialized assignments such as creating questionnaires and conducting interviews that provide useful data for their organizations. In short, they know how to obtain, process, and disseminate information.

Faculty

Professor: Jean-Marie Higiroy

Associate Professors: Douglas Battema, Hsiu-Jung "Mindy" Chang

Professional Educator: Brenda Garton

Program Objectives

Intellectual Range

1. To enlarge and deepen students' understanding of human nature as reflected in and affected by various forms of communication.
2. To enlarge and deepen students' understanding and appreciation of the role of communication in human society and individual life.
3. To deepen students' understanding of the various forms and media of communication.
4. To enhance students' understanding of the conditions for both success and failure in communication, as well as abuses of power through communication.
5. To encourage critical reflection on the information and values conveyed by electronic media, as well as their role in society.
6. To encourage critical reflection on the ethical issues that arise in the field of communication.

Important Communication Skills

The ability to convey information and to persuade others effectively and efficiently—whether in written, oral, or electronically mediated communication—is of great value in personal, family, professional, and political life.

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The communication curriculum is designed to achieve the following:

1. To improve students' ability to read, comprehend, and analyze written communication.
2. To improve students' ability to listen to, comprehend, and analyze oral communication.
3. To develop students' ability to design research strategies and to conduct research effectively.
4. To improve students' ability to write clear, grammatically correct, and rhetorically powerful prose.
5. To improve students' ability to communicate nonverbally and to understand the nonverbal communication of others in a variety of situations.
6. To enhance students' abilities to consume, use, and create electronic media technology and products.

Theoretical and Practical Communication Content

1. To increase students' knowledge of various theories of communication.
2. To heighten students' awareness of the power of communication.
3. To develop students' capacities as powerful communicators in global society.
4. To enable students to be engaged citizens in an increasingly mediated culture.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

The Communication Major requires 39 credit hours in communication and/or journalism courses.

All communication majors are required to take the following courses (24 credit hours), in addition to the courses required by their respective concentrations:

COMM 100	Principles of Communication
COMM 102	Public Speaking
COMM 205	Mass Communication

COMM 206	Introduction To Communication Research
COMM 300	Communication Theory
MATH 120	Introductory Statistics for the Arts and Sciences
PH 110	Critical Thinking
EC/POSC	Social Science Course

Communication majors concentrating in media theory and production are also required to take the following courses (24 credit hours):

COMM 241	Video Production I
COMM 250	Video Production II
COMM 251	TV Broadcasting
COMM 324	Media Industries, Government, and Society
COMM 326	Race, Gender, and Ethnicity in Media
COMM 490	Seminar in Media Theory and Journalism

Plus two COMM courses at the 3xx/4xx level

Communication majors concentrating in journalism are also required to take the following courses (24 credit hours):

JRNL 101	Introduction to Journalism
JRNL 205	Journalism Ethics
JRNL 250	Intermediate Journalism
JRNL 370	Advanced Journalism
COMM 285	Introduction to Public Relations
COMM 490	Seminar in Media Theory and Journalism

Plus two COMM or JRNL courses at the 3xx/4xx level

Communication majors concentrating in professional communication are also required to take the following courses (24 credit hours):

COMM 280	Organizational Communication
COMM 315	Language in Communication
COMM 320	Small Group Communication
COMM 321	Nonverbal Communication
COMM 348	Intercultural Communication
COMM 491	Seminar in Professional Communication and Public Relations

Plus two COMM courses at the 2xx/3xx/4xx level

Communication majors concentrating in public relations are also required to take the following courses (24 credit hours):

COMM 280	Organizational Communication
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COMM 285	Introduction to Public Relations
COMM 320	Small Group Communication
COMM 324	Media Industries, Government, and Society
COMM 340	Business Communication
COMM 491	Seminar in Professional Communication and Public Relations

Plus two COMM courses at the 3xx/4xx level

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Concentration in Media Theory and Production

Freshman Year Credit Hours

<i>Fall Semester</i>		
COMM 100	Principles of Communication (MR)	3
CS 13x	Computer Competence (GUR)	3
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 1xx	Mathematical Analysis (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15

<i>Spring Semester</i>		
COMM 102	Public Speaking (MR)	3
ENGL 133	English Composition II (GUR)	3
GEN xxx	General Elective	3
HIST xxx	Historical Perspective (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/> 16

Sophomore Year Credit Hours

<i>Fall Semester</i>		
EC/POSC xxx	Social Science course	3

COMM 205	Mass Communication (MR)	3
COMM 206	Introduction to Communication Research (MR)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
PH 110	Critical Thinking (MR)	3
		<hr/> 15

<i>Spring Semester</i>		
ARTS xxx	Aesthetic Perspective (GUR)	3
CUL xxx	Cultural Studies Perspective (GUR)	3
COMM 241	Video Production I (MR)	3
WIC 2xx	Writing Intensive course (A&SR)	4
PSY/SO xxx	Social Behavioral Perspective (GUR)	3
		<hr/> 16

Junior Year Credit Hours

<i>Fall Semester</i>		
COMM 250	Video Production II (MR)	3
COMM 251	Broadcast Journalism (MR)	3
COMM 300	Communication Theory (MR)	3
COMM 326	Race, Gender, and Ethnicity in Media (MR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
		<hr/> 15

<i>Spring Semester</i>		
COMM 324	Media Industries, Government, and Society (MR)	3
GEN xxx	General Electives	6
COMM 3xx	COMM Elective (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/> 15

Senior Year Credit Hours

<i>Fall Semester</i>		
COMM 3xx	COMM Electives	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
GEN xxx	General Electives	9
		<hr/> 15

<i>Spring Semester</i>		
COMM 490	Seminar in Media Theory and Journalism (MR)	3

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GEN 3xx	General Electives	12
		<hr/> 15

GEN xxx	General Electives (A&SR)	4
WIC 2xx	Writing Intensive course (A&SR)	3
		<hr/> 16

Concentration in Professional Communication

Freshman Year Credit Hours

<i>Fall Semester</i>		
COMM 100	Principles of Communication (MR)	3
CS13x	Computer Competence (GUR)	3
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 1xx	Mathematical Analysis (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15
<i>Spring Semester</i>		
COMM 102	Public Speaking (MR)	3
ENGL 133	English Composition II (GUR)	3
PSY/SO xxx	Social Behavioral Perspective (GUR)	
HIST xxx	Historical Perspective (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/> 16

Sophomore Year Credit Hours

<i>Fall Semester</i>		
EC/POSC xxx	Social Science course (MR)	3
COMM 205	Mass Communication (A&SR)	3
COMM 206	Introduction to Communication Research (MR)	3
LAB xxx	Laboratory Science Requirement (GUR)	4
PH 110	Critical Thinking (MR)	3
		<hr/> 16
<i>Spring Semester</i>		
ARTS xxx	Aesthetic Perspective (GUR)	3
CUL xxx	Cultural Studies Perspective (GUR)	3
COMM 280	Organizational Communication (MR)	3

Junior Year Credit Hours

<i>Fall Semester</i>		
COMM 300	Communication Theory (MR)	3
COMM 315	Language in Communication (MR)	3
COMM 321	Nonverbal Communication (MR)	3
GEN xxx	General Electives (A&SR)	6
		<hr/> 15
<i>Spring Semester</i>		
COMM 320	Small Group Communication (MR)	3
COMM 348	Intercultural Communication (MR)	3
COMM 2xx	COMM Elective (MR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/> 15

Senior Year Credit Hours

<i>Fall Semester</i>		
COMM 2xx	COMM Elective	3
LAB/NSP xxx	Natural Laboratory Science Perspective (GUR)	3
GEN xxx	General Electives	9
		<hr/> 15

<i>Spring Semester</i>		
COMM 491	Seminar in Professional Communication and Public Relations (MR)	3
GEN 3xx	General Electives	12
		<hr/> 15

Concentration in Journalism

Freshman Year Credit Hours

<i>Fall Semester</i>		
COMM 100	Principles of Communication (MR)	3
CS 13x	Computer Competence (GUR)	3
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2

MATH 1xx	Mathematical Analysis (GUR)	3	
PEHR 151	Personal Health and Wellness (GUR)	1	
		<hr/>	15
<i>Spring Semester</i>			
COMM 102	Public Speaking (MR)	3	
ENGL 133	English Composition II (GUR)	3	
HIST xxx	Historical Perspective (GUR)	3	
JRNL 101	Introduction to Journalism (MR)	3	
MATH 120	Introductory Statistics for the Arts and Sciences	3	
PEHR 153-199	Lifetime Activities Series (GUR)	1	
		<hr/>	16

Sophomore Year		Credit Hours	
<i>Fall Semester</i>			
PH 218	Ethical Perspective (A&SR)	3	
COMM 205	Mass Communication (A&SR)	3	
COMM 206	Introduction to Communication Research (MR)	3	
LAB xxx	Laboratory Science Requirement (GUR)	4	
PH 110	Critical Thinking (MR)	3	
		<hr/>	16

<i>Spring Semester</i>			
ARTS xxx	Aesthetic Perspective (GUR)	3	
CUL xxx	Cultural Studies Perspective (GUR)	3	
PSY/SO xxx	Social Behavioral Requirement (GUR)	3	
JRNL 205	Journalism Ethics (MR)	3	
JRNL 250	Intermediate Journalism (MR)	3	
		<hr/>	15

Junior Year		Credit Hours	
<i>Fall Semester</i>			
EC/POSC xxx	Social Science course (MR)	3	
COMM 300	Communication Theory (MR)	3	
WIC 2xx	Writing Intensive course (A&SR)	3	
GEN xxx	General Electives (A&SR)	4	
WIC 3xx	Writing Intensive course (A&SR)	3	

<i>Spring Semester</i>			
COMM 285	Introduction to Public Relations (MR)	3	
COMM 3xx	COMM/JRNL Elective (MR)		— or —
JRNL 3xx		3	
GEN 3xx	General Electives	3	
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3	
JRNL 370	Advanced Journalism (MR)	3	
		<hr/>	15

Senior Year		Credit Hours	
<i>Fall Semester</i>			
COMM 3xx	COMM/JRNL Elective		— or —
JRNL 3xx		3	
GEN xxx	General Electives	9	
LAB/NSP xxx	Natural Science Perspective (GUR)	3	
		<hr/>	15
<i>Spring Semester</i>			
COMM 490	Seminar in Media Theory and Journalism (MR)	3	
GEN 3xx	General Electives	12	
		<hr/>	15

Concentration in Public Relations

Freshman Year		Credit Hours	
<i>Fall Semester</i>			
COMM 100	Principles of Communication (MR)	3	
CS 13x	Computer Competence (GUR)	3	
ENGL 132	English Composition I (GUR)	3	
LA 100	First Year Seminar (GUR)	2	
MATH 1xx	Mathematical Analysis (GUR)	3	
PEHR 151	Personal Health and Wellness (GUR)	1	
		<hr/>	15

<i>Spring Semester</i>			
COMM 102	Public Speaking (MR)	3	
ENGL 133	English Composition II (GUR)	3	
GEN xxx	General Electives	3	
HIST xxx	Historical Perspective (GUR)	3	

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MATH 120	Introductory Statistics for the Arts and Sciences	3	CUL xxx	Cultural Studies Perspective (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1			<u>15</u>
		<u>16</u>			
Sophomore Year		Credit Hours	Senior Year		Credit Hours
<i>Fall Semester</i>			<i>Fall Semester</i>		
PSY/SO xxx	Social Behavioral Requirement (GUR)	3	COMM 3xx	COMM Elective (MR)	3
COMM 205	Mass Communication (A&SR)	3	LAB/NSP xxx	Natural Science Perspective (GUR)	3
COMM 206	Introduction to Communication Research (MR)	3	GEN 3xx	General Electives	9
LAB xxx	Laboratory Science Requirement (GUR)	4			<u>15</u>
PH 110	Critical Thinking (MR)	3	<i>Spring Semester</i>		
		<u>16</u>	COMM 491	Seminar in Professional Communication and Public Relations (MR)	3
<i>Spring Semester</i>			GEN xxx	General Electives	12
ARTS xxx	Aesthetic Perspective (GUR)	3			<u>15</u>
WIC 2xx	Writing Intensive course (A&SR)	3			
COMM 285	Introduction to Public Relations (MR)	3			
COMM 324	Media Industries, Government, and Society	3			
COMM 280	Organizational Communication (MR)	3			
		<u>15</u>			
Junior Year		Credit Hours			
<i>Fall Semester</i>					
EC/POSC xxx	Social Science course (MR)	3			
COMM 300	Communication Theory (MR)	3			
COMM 3xx	COMM Elective (MR)	3			
WIC 3xx	Writing Intensive course (A&SR)	3			
GEN xxx	General Elective (A&SR)	3			
		<u>15</u>			
<i>Spring Semester</i>					
COMM 340	Business Communication (MR)	3			
COMM 320	Small Group Communication (MR)	3			
GEN xxx	General Elective	3			
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3			

COMPUTER SCIENCE MAJOR

College of Arts and Sciences

General Information

The Computer Science major, which leads to a Bachelor of Science degree, is a versatile major that prepares professionals for careers that may require designing and developing software, finding effective solutions to computing problems, or using computers in innovative ways. The program is interdisciplinary in nature and involves coursework in computer science, computer engineering, and mathematics. The program provides a strong background in programming and software development beginning with Java in the first year sequence followed by a substantial exposure to other contemporary languages such as C/C++ in later courses. The curriculum concentrates on the scientific, mathematical, and theoretical aspects of the design of computer systems while also developing communications skills through a strong liberal arts curriculum. The program prepares students to work as a software engineer, handling the design and development of user-oriented computer applications and systems. The substantial foundation in mathematics and computer hardware in this program offers students uniqueness and strength in today's job market. There is sufficient flexibility in the curriculum to allow students to pursue additional course work in software and/or hardware development, mathematics, business, information processing, computer forensics, and information technology. The program has been structured to follow the current recommendations of the Computer Science Curriculum Committee of the Association for Computing Machinery.

Opportunities

Graduates of this program develop the creativity and patterns of thought required of computer scientists and are prepared to go on to advanced study or to enter various professional fields. Graduates are well equipped with the scientific and analytic training plus the knowledge of software and hardware to enter careers in software design, software development, software management, systems programming, systems analysis, technical and software support, and computer consulting. Organizations in business, industry, and the

private sector are eager for candidates with the knowledge and skills that the graduates of this program possess.

Faculty

Professors: Leh-Sheng Tang, Lisa Hansen

Associate Professors: Heidi Ellis, Herman Lee Jackson II

Professional Educator: John Willemain

Program Objectives

The computer science curriculum is designed in content and method to enable the student to meet the following standards:

1. To learn concepts of computer science:
 - Become independent learners
 - Have the foundation and framework for learning new concepts
 - Prepare for rapid acquisition and assimilation of specifics of real problems and systems
2. To develop and justify theories:
 - Analyze complex systems, make conjectures
 - Argue the truth of assertions systematically
3. To apply the process of abstraction:
 - Conduct systematic investigations
 - Derive general principles and abstractions
 - Experiment to verify principles and correctness of abstractions
 - Use statistical analysis of experiments
4. To design systems:
 - Discover and analyze requirements for a system
 - Create well-structured and testable specifications
 - Design a system to meet the specifications
 - Construct and implement a system meeting the specification and satisfying the requirements

5. To gain experience:
 - In communication in technical and nontechnical areas
 - In analysis and design of systems
 - In collaborative group work
6. To develop skills:
 - In high-level language programming in two standard languages
 - In design and application of data structures
 - In algorithm selection and design
 - In hardware principles; hardware/software tradeoffs
 - In systems analysis

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements p. 42.

Course of Study

1. Required computer science and engineering courses (38 credit hours)
 - CS 101 Introduction to Computing
 - CS 102 Introduction to Programming
 - CS 201/202 Data Structures and Algorithms I & II
 - CS 351 Organization of Programming Languages
 - CS 366 Design and Analysis of Algorithms
 - CS 411 Operating Systems
 - CS 490 Software Engineering
 - CPE 271 Digital Design
 - CPE 310 Machine and Assembly Language
 - CPE 420 Computer Architecture
2. Required mathematics courses (12 credit hours)
 - MATH 150 Applied Discrete Mathematics
 - MATH 251 New Advanced Discrete Structures
 - MATH 245 Brief Calculus
 - MATH 363 Theory of Computation
3. Science courses (6 credit hours)

4. Technical Elective (nine credit hours). Three additional computer science or information technology course numbered 300 or above.

The 2.0 required grade point average in the major is based on all computer science, mathematics, computer engineering, information technology and business information systems courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year Credit Hours

<i>Fall Semester</i>		
CS 101	Introduction to Computing (MR)	4
GEN xxx	General Elective	3
ENGL 132*	English Composition (GUR)	3
LA 100	First Year Seminar (GUR)	2
HIST xxx	Historical Perspective (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr style="width: 100%;"/>
		16

<i>Spring Semester</i>		
CS 102*	Introduction to Programming (MR)	4
MATH 150*	Applied Discrete Mathematics (MR)	3
ENGL 133**	English Composition II (GUR)	3
GEN xxx	General Elective	2
GEN xxx	General Elective	3
PEHR 153-199	Lifetime Activities Series(GUR)	1
		<hr style="width: 100%;"/>
		16

Sophomore Year Credit Hours

<i>Fall Semester</i>		
CS 201* **	Data Structures and Algorithms I (MR)	4
MATH 251* **	Advanced Discrete Mathematics (MR)	3
WIC 2xx	Writing Intensive course (A&SR)	3

LAB xxx	Laboratory Science Requirement (MR/GUR)	3/4
GEN xxx	General Elective	3

SBP xxx	Social/Behavioral Sciences Perspective (GUR)	3
		<hr/>
		15

Spring Semester

CS 202* **	Data Structures and Algorithms II (MR)	4
GEN xxx	General Elective	3
CPE 271*	Digital Design (MR)	4
LAB/NSP xxx	Natural Science Perspective (MR/GUR)	3/4
ARTS xxx	Aesthetic Perspective (GUR)	3
		<hr/>
		16/17

Spring Semester

CS 366**/MATH 363**	Design and Analysis of Algorithms/Theory of Computation (MR)	3
CS 411**/CS/IT 3xx/4xx	Operating Systems/CS Elective (MR)	3
GEN xxx	General Elective	3
PH 211	Business Ethics (MR/GUR)	3
		<hr/>
		12

Junior Year **Credit Hours**

Fall Semester

CS 351**/CS/IT 3xx/4xx**	Programming Languages/CS Elective	3
MATH 245*	Brief Calculus (MR)	3
CS/IT 3xx/4xx	CS Elective (MR)	3
CPE 310* **	Machine and Assembly Language(MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/>
		15

Spring Semester

CUL xxx	Cultural Studies Perspective(GUR)	3
CS 366**/MATH 363**	Design and Analysis of Algorithms/Theory of Computation (MR)	3
CS 411**/CS/IT 3xx/4xx	Operating Systems/CS Elective (MR)	3
CS/IT 3xx/4xx	CS Elective	3
GEN xxx	General Elective	3
		<hr/>
		15

Senior Year **Credit Hours**

Fall Semester

CS 351**/CS/IT 3xx/4xx	Programming Languages/CS Electives (MR)	3
CPE 420**	Computer Architecture (MR)	3
WIC 3xx	Writing Intensive course	3
CS 490	Software Engineering (MR)	3

CREATIVE WRITING MAJOR

College of Arts and Sciences

General Information

The Creative Writing major is intended for students who wish to combine the study of creative writing with the study of literature. Students will gain training in the art of writing within the context of aesthetics, the literary tradition, and a broad liberal arts education. The major offers students a rigorous “apprenticeship” in creative writing, developing students’ understanding of literary forms and tropes, and providing the appropriate background in literary and intellectual history.

Career Opportunities

The Creative Writing major will provide an excellent foundation from which students can continue to grow as writers. Because the combination of writing and literature will deal with everything from form and structure to editing to rewriting to critical thinking, Creative Writing graduates will be well suited for careers in all fields of writing, publishing, editing, advertising, technical writing, public relations, as well as graduate study.

Faculty

Professor: Janet Bowdan

Assistant Professors: Pearl Abraham, Lisa Drnec-Kerr

Professor Emeritus: Shelly Regenbaum

Program Objectives

1. To allow students to see and appreciate their own participation in a great tradition and learn the difference between imitation and innovation by studying the works of great writers and literary techniques so many have used.
2. To increase the student’s ability to read and understand a variety of literary works and to improve the students’ ability to write clear, grammatical, rhetorically effective prose and poetry.
3. To develop the ability to recognize literary techniques in others’ works and to utilize these techniques effectively in their own work.

4. To develop an independent and recognizable artistic “voice” and an increased imaginative capacity.
5. To gain a familiarity with the aspects of the publishing industry most relevant to their work and an experience with the process of submitting works of publishable quality.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements on p. 42.

Course of Study

ENGL 2xx	Introduction to Creative Writing
ENGL 351	Fiction Workshop
ENGL 352	Poetry Workshop
ENGL 354	Creative Nonfiction Workshop
ENGL 231	British Literature I
ENGL 232	British Literature II
ENGL 251	American Literature I — or —
ENGL 252	American Literature II
ENGL 314	Shakespeare – Plays and Poems — or —
ENGL 315	Shakespeare – The Tragedies — or —
ENGL 316	Shakespeare – The Comedies and Histories
ENGL 3/4xx	Elective*
ENGL 3/4xx	Elective*
ENGL 480	Internship in English
ENGL 410	English Seminar

*With approval of the Department Chair, courses in other departments may be substituted

Freshman Year		Credit Hours
<i>Fall semester</i>		
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH lxx	Mathematical Analysis (GUR)	3
GEN xxx	General Elective	3
CS 13x	Computer Competence (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15

Spring Semester

ENGL 133	English Composition II (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
MATH 1xx	Mathematical Analysis (GUR)	3
PH xxx	Ethical Perspective (GUR/A&SR)	3
GEN xxx	General Elective	3
HIST xxx	Historical Perspective (GUR)	3
		<hr/> 16

Sophomore Year**Credit Hours***Fall Semester*

ENGL 237	Introduction to Creative Writing (MR)	3
ENGL 2xx	One literature survey course from among ENGL 231, 232, 251 or 252(MR)	3
SBP xxx	Social/Behavioral Science Perspective (GUR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
LAB xxx	Laboratory Science Requirement	3
		<hr/> 15

Spring Semester

ENGL 2xx	Two literature survey courses from among ENGL 231, 232, 251, 252 (MR)	6
ENGL 314	Shakespeare: Plays and Poems — or —	
ENGL 315	Shakespeare: The Tragedies — or —	
ENGL 316	Shakespeare: The Comedies and Histories (MR)	3
CUL 2xx	Cultural/Aesthetic Studies Perspective	3
WIC 2xx	Writing Intensive course	3
		<hr/> 15

Junior Year**Credit Hours***Fall Semester*

WIC 3xx	Writing Intensive course	3
ENGL 351	Fiction Workshop (MR)	3
ENGL xxx	English Elective (MR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
GEN xxx	General Electives	3
		<hr/> 15

Spring Semester

ENGL 352	Poetry Workshop (MR)	3
ENGL 338	Major Authors (MR)	3
ENGL xxx	English Elective (MR)	3
GEN 3xx	General Electives	6
		<hr/> 15

Senior Year**Credit Hours***Fall Semester*

ENGL 354	Creative Nonfiction Workshop (MR)	3
ENGL xxx	English Elective (MR)	3
GEN 3xx	General Electives	9
		<hr/> 15

Spring Semester

ENGL 410	English Seminar (MR)	3
GEN 3xx	General Electives	13
		<hr/> 16

CRIMINAL JUSTICE MAJOR

College of Arts and Sciences

General Information

The Bachelor of Science in Criminal Justice degree program is primarily designed for students who intend to pursue a professional career in such fields as law enforcement, corrections, probation and parole, court administration, or the juvenile justice system. The program also provides a solid foundation for students who wish to pursue graduate studies.

Career Opportunities

Employment opportunities for the criminal justice professional are extensive with well over 200 different career patterns in the field. Typical careers of graduates include career law enforcement officer positions at the local, state, and federal levels; professional positions in the field of corrections, probations, and parole; positions in court administration and in the juvenile justice system; and positions as industrial security specialists with major security companies and corporations.

Faculty

Associate Professors: John Claffey, Denise Kindschi Gosselin, Alfred Ingham,

Assistant Professors: Hasan Arslan, Frank Gallo

Program Objectives

1. Professional preparation in the career field of criminal justice: to understand the law, areas, science, and obligations of the practitioner.
2. Professional preparation for the specific field of law enforcement: to understand the methods and practice of law enforcement.
3. Professional preparation in the specific field of court operation: to understand their history and operation.
4. Professional preparation in the specific field of corrections: to understand its history, development, and operation.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements on p. 42. 122 credit hours are required for graduation.

Course of Study

1. Required criminal justice courses (31 credit hours)

CJ 101	Introduction to Criminal Justice
CJ 210	Criminology
CJ 211	Corrections
CJ 218	Police and Society
CJ 234	The Judicial Process
CJ 240	Criminal Law and Procedure
CJ 300	Applied Analytical Methods
CJ 301	Research Methods
CJ 340	Ethical Decision-making in Law Enforcement
CJ 450	Senior Seminar

An additional 15 credit hours in criminal justice courses is required. It is recommended that the student pursue a track program which will be reflected on their transcript. If the student does not choose a track program, he or she may select any 5 courses from the three track programs to fulfill this requirement.

Criminal Justice Track Options

Crime and Society

CJ/SO 235	Domestic Violence	3
CJ 302	Women and the Criminal Justice System	3
CJ/SO 304	Children, Family, and the State	3
CJ 342	Juvenile Justice	3
CJ/SO 306	Disability and Mental Health Issues in the Criminal Justice System	3
		<hr/>
		15

Criminal Investigation

CJ 220	Evidence	3
CJ 231	Criminal Investigation	3
CJ 313	Interviewing and Interrogation	3
CJ 325**	Forensic Science	3
	—or—	
CJ 405	Organized Crime	

CJ 348	Introduction to Cyber Crime	3
		<hr/> 15

Terrorism and Homeland Security

CJ 260	Introduction to Terrorism and Homeland Security	3
CJ 361	Origins of Terrorism	3
CJ 362	Counter Terrorism	3
CJ 363	Weapons of Mass Destruction	3
CJ 364	Terrorism and Business	3
		<hr/> 15

Suggested Sequence of Courses

Notes

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year **Credit Hours***Fall Semester*

CJ 101*	Introduction to Criminal Justice (MR/A&SR)	3
SO 101*	Introduction to Sociology	3
ENGL 132*	English Composition I (GUR/MR)	3
MATH xxx*	Mathematical Analysis (GUR/MR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15

Spring Semester

CJ 210**	Criminology (MR)	3
CJ 218**	Police and Society (MR)	3
ENGL 133**	English Composition II (GUR/MR)	3
MATH 120*	Introductory Statistics for the Arts and Sciences (GUR/MR)	3
PSY 101	Introduction to Psychology (MR)	3
	— or —	
CJ 2xx	Criminal Justice Track Course (MR)	
PEHR 153-199	Lifetime Activities Series(GUR)	1
		<hr/> 16

Sophomore Year**Credit Hours***Fall Semester*

CJ 211**	Corrections (MR)	3
CJ 2xx	Criminal Justice Track Course (MR)	3
	— or —	
PSY 101	Introduction to Psychology (MR)	
POSC 102	American Government	3
LAB xxx	Laboratory Science (GUR)	3
SO 211**	Sociology of Minority Groups	3
	— or —	
SO 309**	Sociology Deviation and Control	
	— or —	
PSY 326**	Abnormal Psychology	
		<hr/> 15

Spring Semester

CUL xxx	Cultural Studies (GUR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
CJ 240**	Criminal Law and Procedure (MR)	3
CJ 2xx or 3xx	Criminal Justice Track Course (MR)	3
NSP	Natural Science Perspective (GUR)	3
		<hr/> 15

Junior Year**Credit Hours***Fall Semester*

CJ 234**	The Judicial Process (MR)	3
CJ 3xx	Criminal Justice Track Course (MR)	3
CJ 300*	Applied Analytical Methods (MR)	3
CS 131		3
	— or —	
CS 133		
WIC 2xx	Writing Intensive course(A&SR)	3
		<hr/> 15

Spring Semester

CJ 301**	Research Methods (MR)	4
CJ 340**	Ethical Decision-making (MR)	3
HIST 1xx	Historical Perspective (A&SR)	3
GEN xxx	General Elective	3
WIC 3xx	Writing Intensive course(A&SR)	3
		<hr/> 16

Senior Year	Credit Hours	
<i>Fall Semester</i>		
CJ 3xx	Criminal Justice Track Course (MR)	3
CJ 341**	Constitutional Issues in Criminal Justice	3
	— or —	
POSC 325	Constitutional Law	
CJ 480	Internship in Criminal Justice ²	3
	— or —	
CJ 450	Senior Seminar	3
GEN xxx	General Elective	3
PH xxx	Ethical Perspective (GUR)	3
		15
<i>Spring Semester</i>		
CJ 3xx	Criminal Justice Track Course (MR)	3
	— or —	
GEN xxx	General Elective	3
GEN 3xx	General Elective	3
GEN 3xx	General Elective	3
ILP xxx	Integrated Liberal Professional Perspective (A&SR)	3
		15

Notes:

1. *The Criminal Justice program can easily accommodate a Study Abroad semester, which is a highly recommended use of General Elective courses.*

2. *CJ 480 Internship in Criminal Justice is not required, but is encouraged. It may be used to satisfy the CJ 450 Capstone Course Requirement.*

ECONOMICS MAJOR

College of Arts and Sciences

General Information

The objective of the Economics Major is to provide students with the analytical tools that enable them to think for themselves, not only about economics but also about the world around them. Courses range from the traditional, such as Money and Banking or American Economic History, to the analytical, such as Microeconomics or Macroeconomics. Some courses feature hands-on experience with both microcomputers and the University's mainframe computer. The Senior Seminar provides experience in supervised research and delivery of an oral presentation.

Career Opportunities

Employment opportunities are available in the private, public, and nonprofit sectors. Typical employment might be in banking, with public sector agencies such as a board of health, with the federal government, as a stockbroker, in secondary level teaching, or in private sector management. Students with just one year of graduate training may enter Federal Civil Service at the GS 7 or GS 9 level.

Graduates are well positioned for graduate work in economics, law, business, and public administration. Those pursuing graduate work in economics can expect to find teaching positions at colleges and universities.

Faculty

Professors: Arthur Schiller Casimir, Herbert Eskot

Assistant Professors: Anita Dancs, Ranganath Murthy, Karl Petrick

Program Objectives

1. To provide a thorough understanding of economic theory.
2. To apply economic theory to the analysis of a variety of social, political, and business issues.
3. To develop students' ability to think creatively and independently about a variety of social, political, and business issues.

4. To apply critical thinking and problem solving skills to developing solutions to problems at the level of an individual decision making unit like a business firm or a nonprofit organization.
5. To apply critical thinking and problem solving skills to developing solutions to problems at the level of the nation or the world.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

1. Required economics and mathematics courses (24 credit hours):

EC 111	Principles of Economics I
EC 112	Principles of Economics II
EC 215	Macroeconomics
EC 216	Microeconomics
EC 490	Seminar: Issues in Contemporary Economics
MATH 111	Analysis for Business and Economics I & II*
MATH 112	Analysis for Business II — or —

Two more advanced courses in Mathematics:

MATH 120	Introduction to Statistics or the Arts and Sciences — or —
BIS 220	Introduction to Business Statistics — or —
PSY 207	Statistics for the Social Sciences
2. Fifteen additional credit hours selected from:

EC 200/300/400	Upper-level economics courses
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3. Eighteen additional credit hours in social science courses, including three credit hours each of political science, history, psychology, and sociology. (Also satisfies the Social and Behavioral Science Perspective.)

The 2.0 required grade point average in the major is based upon all EC courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

Please note: Students who join the Department of Economics at the beginning of their sophomore year can begin taking their major requirement then and complete the program without academic sacrifice.

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year

Fall Semester

	Credit Hours
EC 111*	Principles of Economics (MR/A&SR) 3
MATH 111*	Analysis for Business and Economics (GUR/MR) 3
LA 100	First Year Seminar (GUR) 2
CS 13x	Computer Competence (GUR) 3
ENGL 132*	English Composition I (GUR) 3
PEHR 151*	Personal Health and Wellness (GUR) 1
	15

Spring Semester

EC 112**	Principles of Economics II (MR) 3
MATH 112**	Analysis for Business Economics II (GUR/MR) 3
ENGL 133**	English Composition II (GUR) 3
PH xxx	Ethical Perspective (GUR) 3
HIST xxx	Historical Perspective (GUR/MR) 3
GEN xxx	General Elective 1
PEHR 151*-199**	Lifetime Activities Series (GUR) 1
	17

Sophomore Year

Fall Semester

	Credit Hours
EC 215**	Macroeconomics (MR) 3
MATH 120/ BIS 220/PSY 207	Statistics Requirement (MR) 3
LAB xxx	Lab Science (GUR) 3
CUL xxx	Cultural Studies/Aesthetic Perspective (GUR) 3
POSC xxx	Social Science Requirement (MR) 3
	15

<i>Spring Semester</i>		
EC 216**	Microeconomics (MR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
WIC 2xx	Writing Intensive course A&SR)	3
PSY xxx	Behavioral Science Requirement (MR/A&SR)	3
EC 2xx/3xx	Economics Elective (MR)	3
		<hr/> 15

Junior Year Credit Hours

<i>Fall Semester</i>		
EC 3xx**/4xx**		3
EC 3xx**/4xx**		3
WIC 3xx	Writing Intensive course A&SR)	3
SO xxx	Behavioral Science Requirement (MR/A&SR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR)	3
		<hr/> 15

<i>Spring Semester</i>		
EC 3xx**/4xx**		3
GEN xxx	General Elective	3
SBP xxx	Social/Behavioral Science Perspective (GUR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 15

Senior Year Credit Hours

<i>Fall Semester</i>		
EC 3xx**/4xx**		3
GEN 3xx/4xx	General Elective (GUR)	3
GEN 3xx/4xx	General Elective	3
GEN 3xx/4xx	General Elective	3
SBP xxx	Social/Behavioral Science Requirement (MR)	3
		<hr/> 15

<i>Spring Semester</i>		
EC 490**	Seminar: Issues in Contemporary Economics (MR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 15

Note: A one-credit course must be taken at some point during the four-year sequence.

EDUCATION MAJORS

General Information:

Teacher Education Majors

Throughout the history of Western New England University, many graduates have gone on to careers in education. Since the establishment of the College of Arts and Sciences in 1967, the University has offered secondary education teacher education. Following this tradition, in 1997 the University initiated a teacher licensure program for students interested in preparing for careers in elementary education, grades 1-6.

The philosophy of these majors is one of providing academically well-prepared students combined with the professional preparation necessary to become effective teachers. They emphasize skills in classroom instruction, assessment, and management. The Massachusetts Department of Elementary and Secondary Education has approved all of the University's teacher preparation programs through processes and standards which provide reciprocity in licensure of educational personnel. They are on the NASDTEC Interstate Contract list of approved programs.

While Western New England University programs are widely reciprocal with other states, students are advised that some states may have additional requirements for licensure. An interested student should discuss this possibility with a member of the Education Department, or look at the Department of Education website for the state in question.

A regional teaching license, the Northeast Regional Credential, allows teachers in New England and New York to take a job immediately in any of the other six states and to have up to two years to complete any unmet requirements for licensure in the new state. For further information, students should consult with their advisor.

Licensure requires more than just meeting course requirements. It is based upon completing University requirements and state requirements and passing required MTEL exams. Interested persons may get a more detailed description of the requirements for graduating as a candidate eligible for teacher licensure in Massachusetts. It is important to note that the designs of the following majors reflect changes that have been made to adapt

to new Massachusetts regulations that went into effect October 1, 2001. Students who transfer into the University may not be able to graduate in four years.

Students who completed the program in the academic year 2009-2010, had a 100% pass rate on all Massachusetts Tests for Educator Licensure (MTEL).

Faculty

Professor: Robert Klein

Associate Professors: Molly Munkatchy, Deb Patterson

Elementary Teacher Education

Students preparing for the Elementary Teacher license must select a major in one of the prescribed liberal arts and sciences disciplines and complete the elementary education major; they are completing a double major. Students can complete the University's General University requirements, the College of Arts and Sciences requirements, and the elementary education requirements in four years with the following majors: English, history, political science and psychology. Students may also major in mathematics, or sociology but will not be able to graduate within the normal four-year academic program unless they do additional credits over the summer or January terms. Undergraduates are urged to work with the Education Department early in their university careers to carefully plan their university course of study in order to complete both required majors requirements. A student must apply to the Elementary Education Program by the end of the student's first year. A student will be notified of acceptance into the program during spring semester of junior year.

Minimum eligibility requirements for acceptance into the program are:

1. Submission of an Elementary Program Application by the end of a student's first year.
2. A cumulative average of at least 2.80 in all courses, including a 2.80 in the major field and in the preliminary education courses,
3. A letter of recommendation from a member of the Arts and Sciences faculty (not education),

4. Successful completion of three Massachusetts Tests for Educator Licensure (MTEL). The MTEL Communication and Literacy Skills Test, the MTEL Foundations of Reading Test and the MTEL General Curriculum Test must be taken and passed by the spring of junior year.

Students will be notified in the spring of their junior year about their eligibility for the student teaching block to be completed in fall of the senior year. The criteria for advancement will be: the recommendation of an Arts and Sciences faculty member; a recommendation from a cooperating teacher from one of the student's fieldwork courses; appropriate grade point averages; and passing MTEL scores.

Under exceptional circumstances, a student with grade point averages below 2.80 may be admitted to the program by writing a letter requesting a waiver for the GPA requirement which outlines reasons for the lower GPA submitted to the chairperson of the education department and by passing all required MTEL tests before student teaching.

The recommendation for licensure comes at the end of the practicum semester and is a joint recommendation of the program supervisor and supervising practitioner based on the student's successful completion of the Preservice Performance Assessment identifying student competence on state standards as outlined by the Massachusetts Department of Education during a 300-hour practicum. Students apply directly to the state for the teaching license upon graduation from the University.

Currently the University's Elementary Education Program offers students the opportunity to prepare for the Massachusetts Initial License, which is valid for five years of employment. The Massachusetts Professional License is then required of graduates and involves the completion of a Performance Assessment Program or an appropriate master's degree program, and three years of employment under the license.

Successful completion of the University's state approved program and the Massachusetts Tests for Educator Licensure (MTEL) leads the graduate to eligibility for licensure in Massachusetts and 39 other states through the NASDTEC/Interstate Contract. Regional licensure, which includes the six New England states and New York, is also available to

students who successfully complete the University's state approved program at this level. This licensure allows an applicant to receive the initial license in a regional compact state and to take two years to complete any special license requirements unique to that state.

To better plan for licensure in other states, Western New England University students are urged to request information early in their University years directly from the Department of Education in the state(s) from which they seek an additional license.

Required courses for students enrolled in the Elementary Education Program:

**Course includes 25 hours of fieldwork*

***Course includes 300 hours in a full-time field-based practicum (student teaching)*

Since ED 425, ED 479, and ED 480 are taken as a block in September, with ED 479 requiring full-time student teaching each day during October, November, and December, students should keep the fall semester of their senior year available for only these three courses.

ELEMENTARY EDUCATION MAJOR

College of Arts and Sciences

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year

		Credit Hours
<i>Fall Semester</i>		
ENGL 132	English Comp I (GUR)	3
MATH 107	Math for Elem. Ed. (GUR/ MR)	3
HIST 111	U.S. History to 1877 (GUR/ MR)	3
PSY 101*	Intro to Psychology (GUR/ MR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
LA 100	First Year Seminar (GUR)	2
		<hr/> 15

Spring Semester

ENGL 133	English Comp II (GUR)	3
MATH 108	Math for Elem. Ed. (MR)	3
HIST 106	World Civilization II (A&SR/MR)	3
POSC 102	American Government (A&SR/MR)	3
Major xxx	(Psychology majors take PSY 207)	3
PEHR 163	Games Children Play (MR)	1
		<hr/> 16

First attempt on Communication and Literary Skills MTEL encouraged in Spring semester.

Sophomore Year

		Credit Hours
<i>Fall Semester</i>		
ED 350	Teaching of Elementary Reading and Language Arts* (MR)	3
HIST 105	World Civilization I (MR)	3
BIO 103	Life Sciences I (GUR/MR)	3
ENGL 260	Literary Horizons (MR)	3
Major xxx	see catalogue for courses in major	3
		<hr/> 15

<i>Spring Semester</i>	
ED 375	Elementary Curriculum and Methods* (MR) 3
ED 252	Survey of Geography (MR) 1
PHYS 105	Basic Physics (MR) 3
ENGL 339	Children's Literature (A&SR/MR) 3
PSY 304**	Educational Psychology (MR) 3
Major xxx	3
	16

First attempts on Foundations of Reading and/or Elementary Subject Matter MTEL encouraged in this year.

Junior Year **Credit Hours**

<i>Fall Semester</i>	
CS 13x	Computer Competence (GUR) 3
EC 111	Principles of Economics (A&SR/MR) 3
HIST 112	U.S. History 1878-present (MR) 3
Major xxx	see catalogue for courses in major 3
Major xxx	see catalogue for courses in major 3
	15

<i>Spring Semester</i>	
PH xxx	Ethical perspective (GUR) 3
ED 301	Principles and Problems of Education (MR) 3
Major xxx	see catalogue for courses in major 3
Major xxx	see catalogue for courses in major 3
Major xxx	see catalogue for courses in major 3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR) 3
	18

All MTEL tests must be passed at this point.

Senior Year **Credit Hours**

<i>Fall Semester</i>	
ED 425	Elementary Education Topics* (MR) 3
ED 479**	Elementary Teaching Practicum (MR) 9
ED 480**	Elementary Practicum Seminar (MR) 3
	15

<i>Spring Semester</i>	
CUL xxx	Cultural Studies Perspective (GUR) 3
MUS 101	Music Appreciation (GUR/MR) 3
Major xxx	see catalogue for courses in major 3
Major xxx	see catalogue for courses in major 3
Major xxx	see catalogue for courses in major 3
	15

**Requires 25-hour prepracticum classroom experience and journal. Journal topics are related to course. Prepracticum hours must be completed in any sophomore or junior semester, ideally one experience in sophomore year and one experience in junior year.*

Major xxx slots identify where courses required by content major are taken.

*Two courses in the curriculum must be designated "Writing Intensive."

Secondary Teacher Education Majors

Students may prepare for an Initial License to teach in the secondary schools (grades 8-12 in Massachusetts, 7-12 in other states) in the following programs: biology, chemistry, English, general business, history, mathematics, and political science.

Students selecting this career option are required to satisfy all degree requirements for a Secondary Teacher Education major of their content focus. It is important for students to speak with their academic advisors early in their university careers if they intend to pursue this major.

Students considering this major are advised to consult with the Director of the Secondary Education Program as soon as possible. A student must register with the program by the second semester of the sophomore year. A student will be notified of acceptance into the program during the spring semester of the junior year.

Minimum eligibility requirements for acceptance into the program are:

1. Submission of a Secondary Program Application during the second semester of sophomore year and a one-on-one meeting with the Director of the Secondary Education Program,

- Cumulative average of at least 2.80 in all courses, including a 2.80 average in the major field and in preliminary education courses,
- A recommendation from a faculty member in the student's major department,
- Successful completion of two Massachusetts Tests for Educator Licensure (MTEL). The MTEL Communication and Literacy Skills Test and the MTEL Subject Matter Content Test must also be taken and passed by the spring semester of junior year. Appropriate review materials are offered on campus for students.

Under exceptional circumstances, a student with grade point averages below 2.80 may be admitted to the program by getting a special recommendation from the chairperson of the student's major department and by passing the MTEL tests.

Like the Elementary Education major, the Secondary Education majors offer students the opportunity to prepare for the Massachusetts Initial License, which is valid for five years of employment. The Massachusetts Professional License is then required of graduates following three years of successful teaching experience and involves completion of a Performance Assessment Program or an appropriate master's degree program.

Since ED 380, ED 403, ED 409, and ED 410 are offered in one block, students must keep the fall semester of their senior year open for these courses. The courses ED 301, PSY 304, and ED 403 all require 25 hours of field work. The course ED 409 requires a minimum of 150 hours in a full-time, field-based practicum.

SECONDARY EDUCATION BIOLOGY MAJOR

College of Arts and Sciences

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year

	Credit Hours
<i>Fall Semester</i>	
BIO 107*	General Biology I (GUR/MR) 3
BIO 117*	General Biology Lab I(MR) 1
CHEM 105*	General Chemistry I (MR) 4
ENGL 132*	English Composition I (GUR) 3
LA 100	First Year Seminar (GUR) 2
MATH 109	Pre-Calculus Mathematics (GUR/MR) 3
	— or —
MATH 123	Calculus I for Management, Life and Social Sciences
	16

Spring Semester

BIO 108**	General Biology II (GUR/MR) 3
BIO 118**	General Biology Laboratory II (MR) 1
CHEM 106**	General Chemistry II (MR) 4
ENGL 133**	English Composition II (GUR) 3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR/MR) 3
PEHR 151	Personal Health and Wellness (GUR) 1
	15

Sophomore Year

	Credit Hours
<i>Fall Semester</i>	
BIO 213/223**	Ecology (MR) 4
CHEM 209**	Organic Chemistry I (MR) 3
CHEM 219**	Organic Chemistry Laboratory I (MR) 1
WIC 2xx	Writing Intensive course (A&SR) 3
PSY 101*	Introduction to Psychology(GUR)(MR) 3

PEHR 153-199	Lifetime Activities Series (GUR)	1	BIO 2xx	Biology Elective (MR)	4
			PHYS 15x	— or —	3
		<hr/>			
		15	PHYS 124	Physics of the Life Sciences II	(4)
<i>Spring Semester</i>			PH xxx	Ethical Perspective (GUR)	3
ED 301	Principles and Problems of Education (MR)(A&SR)	3	BIO 455**	Evolution	3
BIO 201**	Plant Biology (MR)	4			<hr/>
CHEM 210**	Organic Chemistry II (MR)	3			16(17)
CHEM 220**	Organic Chemistry Laboratory II (MR)	1			<hr/>
ART xxx	Aesthetic Perspective (GUR)	3			Total 122
		<hr/>			
		14			

Junior Year Credit Hours

<i>Fall Semester</i>					
BIO 306**	Genetics (MR)	4			
CUL xxx	Cultural Studies Perspective (GUR)	3			
CS 131	Computer Competence Requirement (GUR)	3			
PHYS 101	Elements of Physics — or —	3			
PHYS 123	Physics of the Life Sciences	(4)			
WIC 3xx	Writing Intensive course (A&SR)	3			
		<hr/>			
		16(17)			

<i>Spring Semester</i>					
BIO 310**	Cell Biology (MR) — or —	4			
BIO 312	Developmental Biology				
BIO 2xx**	Biology Elective (MR)	4			
PSY 304**	Educational Psychology (MR)	3			
HIST xxx	Historical Perspective (GUR)	3			
		<hr/>			
		14			

Senior Year Credit Hours

<i>Fall Semester</i>					
ED 380	Secondary Education Topics (MR)	1			
ED 403	Methods of Teaching in Secondary Schools (MR)	3			
ED 409	Practicum in Secondary Teaching (MR)	9			
ED 410	Secondary Practicum Seminar (MR)	3			
		<hr/>			
		16			

<i>Spring Semester</i>					
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3			

SECONDARY EDUCATION CHEMISTRY MAJOR

College of Arts and Sciences

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

CHEM 105	General Chemistry I (GUR/ MR)	4
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 133	Calculus I (GUR/MR)	4
PHYS 133	Mechanics (MR)	4
		<hr/>
		17

Spring Semester

CHEM 106**	General Chemistry II (GUR/MR)	4
ENGL 133**	English Composition II (GUR)	3
MATH 134**	Calculus II (GUR/MR)	4
PEHR 151	Personal Health and Wellness (GUR)	1
PHYS 134	Electricity and Magnetism (MR)	4
		<hr/>
		16

Sophomore Year Credit Hours

Fall Semester

CHEM 209**	Organic Chemistry I (MR)	3
CHEM 211**	Analytical Methods (MR)	3
CHEM 219**	Organic Chemistry Laboratory I (MR)	1
CHEM 221	Analytical Methods Laboratory (MR)	1
MATH 235**	Calculus III (MR)	3
CS xxx	Computer Competence Requirement (GUR)	3
PSY 101*	Introduction to Psychology (A&SR)	3
		<hr/>
		17

Spring Semester

CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CHEM 312	Instrumental Analysis (MR)	3

CHEM 322	Instrumental Analysis Laboratory (MR)	1
WIC 2xx	Writing Intensive course (A&SR)	3
PEHR 153 199**	Lifetime Activities Series (GUR)	1
ED 301	Principles and Problems of Education (MR)	3
		<hr/>
		15

Junior Year Credit Hours

Fall Semester

CHEM 317	Physical Chemistry I (MR)	3
CHEM 327	Physical Chemistry Laboratory I (MR)	1
PH xxx	Ethical Perspective (GUR)	3
CUL xxx	Cultural Studies Perspective	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/>
		13

Spring Semester

CHEM 318**	Physical Chemistry II (MR)	3
CHEM 328*	Physical Chemistry Laboratory II (MR)	1
CHEM 314**	Biochemistry (MR)	3
CHEM 324**	Biochemistry Laboratory (MR)	1
PSY 304**	Educational Psychology (MR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
		<hr/>
		14

Senior Year Credit Hours

Fall Semester

ED 380	Secondary Education Topics (MR)	1
ED 403	Methods of Teaching in Secondary Schools (MR)	3
ED 409	Practicum in Secondary Teaching (MR)	9
ED 410	Secondary Practicum Seminar (MR)	3
		<hr/>
		16

Spring Semester

GEN xxx	General Elective	3
ARTS xxx	Aesthetics Perspective (GUR)	3
CHEM 421**	Inorganic Chemistry (MR)	3
CHEM 431	Inorganic Chemistry Lab (MR)	1
GEN xxx	General Elective	1
HIST xxx	Historical Perspective (GUR)	3
		<hr/>
		14

SECONDARY EDUCATION ENGLISH MAJOR

College of Arts and Sciences

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 1xx	Mathematical Analysis (GUR)	3
PSY 101	Introduction to Psychology (MR)	3
CS 13x	Computer Competence (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		15

Spring Semester

ENGL 133	English Composition II (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
MATH 1xx	Mathematical Analysis (GUR)	3
PH xxx	Ethical Perspective (GUR)	3
GEN xxx	General Elective	3
HIST xxx	Historical Perspective (GUR)	3
		16

Sophomore Year Credit Hours

Fall Semester

ENGL 231	British Literature I (MR)	3
ENGL 251	American Literature I (MR)	3
ENGL 214/215	World Literature I or II (MR)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
WIC 2xx	Writing Intensive Course	3
		15

Spring Semester

ENGL 232	British Literature II (MR)	3
ENGL 252	American Literature II (MR)	3
ENGL 302	Approaches to the Study of Literature (MR)	3

CUL xxx	Cultural/Aesthetic Studies Perspective (GUR)	3
SBP xxx	Behavioral Science Requirement	3
		15

Junior Year Credit Hours

Fall Semester

WIC 3xx	Writing Intensive Course	3
ENGL 311	The English Language (MR)	3
ENGL 260	Literary Horizons (MR)	3
ENGL 314	Shakespeare: Plays and Poems — or —	
ENGL 315	Shakespeare: The Tragedies — or —	
ENGL 316	Shakespeare: The Comedies and Histories (MR)	3
PSY 304**	Educational Psychology (MR)	3
		15

Spring Semester

ED 301	Principles and Problems of Education (MR)	3
ENGL 411	Major Authors (MR)	3
ENGL xxx	English Elective	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
ENGL 344/354	Expository/Creative Non-fiction (MR)	3
		15

Senior Year Credit Hours

Fall Semester

ED 380	Secondary Education Topics (MR)	1
ED 403	Methods of Teaching in Secondary School (MR)	3
ED 409	Practicum in Secondary Teaching (MR)	9
ED 410	Secondary Practicum Seminar (MR)	3
		16

Spring Semester

ENGL 410	English Seminar (MR)	3
ENGL xxx	History Underreported Lit	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		15

SECONDARY EDUCATION GENERAL BUSINESS MAJOR

College of Arts and Sciences
College of Business

Suggested Sequence of Courses

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- BUSR College of Business Requirement

Freshman Year Credit Hours

Fall Semester

BUS 101	First Year Seminar (GUR/ BUSR)	3
ENGL 132	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR) — or —	
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
BIS 102	Problem Solving with Business Tools (BUSR) — or —	
MAN 101	Management and Organizational Behavior (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		16

Spring Semester

ENGL 133	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR) — or —	
MATH 124	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
COMM 100	Principles of Communication (BUSR)	3
BIS 102	Problem Solving with Business Tools (BUSR) — or —	
MAN 101	Management and Organizational Behavior (BUSR)	3

PSY 101	Introduction to Psychology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		16

Sophomore Year Credit Hours

Fall Semester

AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
BL 201	Introduction to Business Law (BUSR)	3
		15

Spring Semester

AC 202	Managerial Accounting (MR)	3
BIS 220	Introduction to Business Statistics (BUSR)	3
FIN 214	Introduction to Finance (BUSR)	3
EC 112	Principles of Economics II (BUSR)	3
ED 301	Principles and Problems of Education (MR)	3
LBC 2xx	Learning Beyond the Classroom	
		15

Junior Year Credit Hours

Fall Semester

BUS 301	Managing the Established Enterprise (BUSR)	3
MAN 323	Human Resource Management (MR)	3
PH 211	Business Ethics (BUSR)	3
CUL xxx	Cultural Perspectives (GUR)	3
LAB xxx	Natural Science Perspective (GUR)	3
		15

Spring Semester

PSY 304	Educational Psychology (MR)	3
BIS 310	Quality and Operations Management (BUSR)	3
IT 240/BIS 210	Foundations of Web Technology (MR)	3
BL 308	Employee Relations (MR)	3

LAB/NSP xxx	Natural Science Perspective (GUR)	3
		<hr/> 15

Senior Year **Credit Hours**

<i>Fall Semester</i>		
ED 380	Secondary Education Topics (MR)	1
ED 403	Methods of Teaching in Secondary Schools (MR)	3
ED 409	Practicum in Secondary Teaching (MR)	9
ED 410	Secondary Practicum Seminar (MR)	3
		<hr/> 16

<i>Spring Semester</i>		
BL 424	Business Law for Human Resource Management (MR)	3
BUS 450	Business Strategy (BUSR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR)	3
CUL xxx	Elements of Culture Requirement (GUR)	3
BUS xxx	Business Elective (MR)	3
LBC xxx	Learning Beyond the Classroom	
		<hr/> 15

This program requires 123 credit hours.

**SECONDARY EDUCATION
HISTORY MAJOR**

College of Arts and Sciences

Suggested Sequence of Courses

- Notes:
- * Is a prerequisite
 - ** Has a prerequisite
 - MR Major Requirement
 - GUR General University Requirement
 - A&SR College of Arts and Sciences Requirement

Freshman Year **Credit Hours**

<i>Fall Semester</i>		
HIST 105	World Civilization I (GUR/ MR)	3
HIST 111	US History to 1877 (MR)	3
MATH 1xx*	Mathematics (GUR)	3
ENGL 132*	English Composition I (GUR)	3
LA 100	First Year Seminar(GUR)	2
		<hr/> 14

<i>Spring Semester</i>		
HIST 106	World Civilization II (MR)	3
HIST 112	US History 1878 to Present (MR)	3
MATH xxx	Mathematical Analysis (MR)	3
PSY 101	Introduction to Psychology (MR)	3
ENGL 133**	English Composition II (GUR)	3
PEHR 151	Personal Health and Wellness (GUR.)	1
		<hr/> 16

Sophomore Year **Credit Hours**

<i>Fall Semester</i>		
POSC 102	American National Government	3
EC 111	Principles of Economics I (MR)	3
LAB xxx	Laboratory Science Perspective (GUR)	3
CUL xxx	Cultural Studies Perspective (GUR)	3
GEN xxx	General Elective	3
PEHR 153-199	Life Activities Series (A&SR)	1
		<hr/> 16

<i>Spring Semester</i>		
S0 101	Introduction to Sociology	3
CS 13x	Computer Competency (GUR)	3

HIST 2xx	Methods Seminar (MR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
ED 301	Principles and Problems of Education (MR)	3
		15

Junior Year Credit Hours

Fall Semester

PH xxx	Ethical Perspective (GUR.)	3
HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
GEOG 101	Introduction to Geography (MR)	3
		15

Spring Semester

HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
PSY 304	Educational Psychology (MR)	3
HIST xxx	History Elective(MR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR)	3
		15

Senior Year Credit Hours

Fall Semester

ED 380	Secondary Education Topics (GUR.)	1
ED 403	Methods of Teaching in Secondary Schools (MR)	3
ED 409	Practicum in Secondary Teaching (MR)	9
ED 410	Secondary Practicum Seminar (MR)	3
		16

Spring Semester

HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
GEN xxx	General Elective	3
HIST 490**	Senior Seminar (MR)	3
GEN xxx	General Elective	3
		15

* Two courses must be designated as writing intensive.

SECONDARY EDUCATION MATHEMATICS MAJOR

College of Arts and Sciences

Suggested Sequence of Courses

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

BIO 107 and 117, CHEM 105, PHYS 123, or PHYS 133 (GUR/MR)	4	
ENGL 132*	Composition I (GUR)	3
MATH 133*	Calculus I (GUR/MR)	4
HIST xxx	Historical Perspective (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		17

Spring Semester

CS 170	Technology in Mathematics (MR)	3
ENGL 133**	Composition II (GUR)	3
MATH 134** *	Calculus II (GUR/MR)	4
BIO 108 and 118, CHEM 106, PHYS 124, or PHYS 134 (GUR/MR)	4	
PH 204	Symbolic Logic, (recommended, not required)(A&SR)	3
		17

Sophomore Year Credit Hours

Fall Semester

MATH 235** *	Calculus III (MR)	3
MATH 281** *	Foundations of Mathematics I (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
PSY101*	Introduction to Psychology (A&SR)	3
GEN xxx	General Elective	3
		16

Spring Semester

MATH 282** *	Foundations of Mathematics II (MR)	3
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MATH 276** *	Advanced Calculus (MR)	3	ILP xxx	Integrated Liberal and Professional Perspective (GUR)	
CS 102	Introduction to Programming (MR/GUR)	4		— or —	
WIC 2xx	Writing Intensive course (A&SR)	3	MATH 373 **	Statistical Modeling (MR)	3
ED 301	Principles and Problems of Education (MR)	3	MATH 377 **	Elementary Number Theory (MR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1	MATH 371 **	Modern Aspects of Geometry (MR)	
		17	GEN xxx	General Elective	3
					14

Junior Year

Credit Hours

Fall Semester

MATH 306 **	Linear Algebra (MR)	3
MATH 418 **	Modern Algebra (MR)	3
MATH xxx	Mathematics Elective	3
PH xxx	Ethical Perspective (GUR)	3
CUL xxx	Cultural Studies Perspective (GUR)	3
		15

Note: the general university requirements in Aesthetics and Cultural Studies can be satisfied by taking a single course that has a designation of fulfilling both requirements.

Spring Semester

MATH 421 **	Real Analysis (MR)	3
MATH 371 **	Modern Aspects of Geometry (MR)	3
	— or —	
MATH 377 **	Elementary Number Theory	3
WIC 3xx	Writing Intensive course (A&SR)	3
PSY 304**	Educational Psychology (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
	-or-	
MATH 373 **	Statistical Modeling (MR)	3
		15

Senior Year

Credit Hours

Fall Semester

MATH 451	Senior Project I (MR)	1
ED 380	Secondary Education Topics (MR)	1
ED 403	Methods of Teaching in Secondary School (MR)	3
ED 409	Practicum in Secondary Teaching (MR)	9
ED 410	Secondary Practicum Seminar (MR)	3
		17

Spring Semester

MATH xxx	Mathematics Elective	3
MATH 452	Senior Project II (MR)	2

SECONDARY EDUCATION POLITICAL SCIENCE MAJOR

College of Arts and Sciences

Suggested Sequence of Courses

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

HIST 105	World Civilization I (MR)	3
POSC 102*	American National Government (MR)	3
MATH 1xx*	Mathematical Analysis (GUR)	3
ENGL 132*	English Composition I (GUR)	3
HIST 111	U.S. History to 1877 (MR)	3
LA 100	First Year Seminar (GUR)	2
		17

Spring Semester

POSC 101	Introduction to Contemporary Global Issues (MR)	3
PSY 101	Introduction to Psychology (MR)	3
MATH1120**	Introductory Statistics for the Arts and Sciences (GUR)	3
HIST 106	World Civilization II (MR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
ENGL 133**	English Composition II (GUR)	3
		16

Sophomore Year Credit Hours

Fall Semester

POSC 201**	Comparative Politics (MR)	3
POSC 203**	International Relations (MR)	3
EC 111	Principles of Economics I (MR)	3
LAB xxx	Laboratory Science(GUR)	3
PEHR 153-159	Lifetime Activities Series (GUR)	1
GEN xxx	General Elective	3
		16

Spring Semester

POSC 207**	Western Political Thought (MR)	3
CS 13x	Computer Competence (GUR)	3
EC 112	Principles of Economics II	3
ED 301	Principles/Problems of Education (MR)	3
POSC 212	Political Analysis	3
HIST 112	U.S. History, 1878 to present (MR)	3
		18

Junior Year Credit Hours

Fall Semester

PH xxx	Ethical Perspective(GUR)	3
POSC 205	Public Administration — or —	
POSC 210	State Politics in America — or —	
POSC 218	Public Policy in America (MR)	3
POSC 2xx/3xx**	Political Science Elective (MR)	3
GEOG 101	Introduction to Geography (A&SR/MR)	3
POSC 2xx/3xx	Political Science Elective (MR)	3
		15

Spring Semester

POSC 3xx**	Upper Level Political Science Elective (MR)	3
POSC 3xx**	Upper Level Political Science Elective (MR)	3
PSY 304**	Educational Psychology (MR)	3
CUL xxx	Cultural/Aesthetic Perspective (GUR)	3
POSC xxx	Political Science Elective (MR)	3
HUM xxx	Humanities (A&SR)	3
		18

Senior Year Credit Hours

Fall Semester

ED 380	Secondary Education Topics (MR)	1
ED 403	Methods of Teaching in Secondary Schools (MR)	3
ED 409	Practicum in Secondary Teaching (MR)	9
ED 410	Secondary Practicum Seminar (MR)	3
		16

Spring Semester

POSC 490**	Seminar in Political Science (MR)	3
POSC 3xx**	Upper Level Elective (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
POSC 3xx**	Upper Level Elective (MR)	3
		<hr/> 15

* Two courses must be designated as writing intensive.

ELECTRICAL ENGINEERING MAJOR

College of Engineering

General Information

Electrical engineers are at the forefront of today's technological revolution. The Internet has filled our lives with their influences. Electrical engineers touch every aspect of today's modern world. Our graduates are uniquely qualified to become engineers, capable of designing hardware and software. Electrical engineers work in the communications, controls, biomedical, aerospace, electronics, materials, energy, defense, and other diverse commercial sectors.

The academic program in electrical engineering provides the student with a thorough background in electronic and systems design. The student may tailor the program to his or her specific interests by selecting appropriate technical or design electives. Elective areas include electronics, and land-based wireless communications, VLSI, digital signal processing (DSP), power electronics, controls, robotics, image processing, and embedded systems. In all of our courses, we stress the balance of theory and practice. The theory, presented in class, is coupled with extensive, practical, hands-on laboratories.

These laboratories are well equipped and all facilities are available for undergraduate use.

There are four concentrations within the program: Electrical Concentration, Computer Concentration, Green Engineering Concentration and Flex Concentration. All concentrations have common courses for the first two years. The program leading to the B.S.E.E. degree is accredited by the Engineering Accreditation Commission of ABET Inc., 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, 410-347-7700.

Career Opportunities

The Electrical Concentration provides a broad based education that leads to employment in a diverse spectrum of industries in both private and public sectors, for example, power utility, aerospace, defense, telecommunications, automotive, medical electronics, and consumer electronic (including multimedia) industries.

In particular we offer courses in electronic communications, power electronics, robotics/controls, and signal/image processing.

The Computer Concentration emphasizes specialized coursework in the design of large and small computer hardware and software systems. Microminiaturization of digital devices, such as single chip microcomputers, has made it possible for the designers to embed these devices in many products. In particular, courses are offered in architecture, software and hardware design, and embedded systems.

The Green Engineering Concentration emphasizes coursework relative to the new smart grid. Courses are offered on power generation and distribution, alternative energy source and integrating renewable forms of energy into the grid.

The value added in today's products is electronics and software. Engineers in both Electrical and Computer Concentrations continue to be in demand in all types of public and private enterprises. The biggest employers of Electrical Engineering graduates are software companies and the aerospace and defense industries.

The Flex Concentration is intended for students who want to obtain a basic degree in Electrical Engineering (BSEE) but also want to specialize in a related track of particular interest to them. The track options could be from other engineering disciplines or from the College of Arts and Sciences or College of Business or College of Pharmacy.

To help clarify the terminology used to describe the many subdisciplines of electrical engineering, this list is provided to help students focus their career directions.

Computer Systems Design

Microprocessors, Software Engineering, Digital Signal Processing, VHDL/Digital Logic Real-time Systems, Robotics, Networks

Robotics

Machine Vision Systems, Image Processing, Autonomous Mobile Robots

Communications

Analog Filter Design, Wireless, RF/Microwave, Electro Optics, Signal Processing

Electronics

VLSI, Analog Filter Design, Solid State Devices, Electromagnetics

Controls

Linear Systems, Dynamic Systems, Computer Controlled Systems, Optimum Control, Artificial Intelligence: Neural Networks, Fuzzy Logic

Digital Signal and Image Processing

Sensor biomedical, voice and audio, radar signal and image processing

Power and Green Engineering

Power Transmission, Motors, Power Generation, Monitoring and Control, Smart Grid, Signal/Image Processing

Design Experience

Students are introduced to engineering design in the freshman year in the Introduction to Engineering courses. Sophomore and junior courses and labs provide progressively more sophisticated design experiences within the electrical engineering program. The program culminates in a capstone Senior Design Project course in which each student works on an independent project under the supervision of a faculty advisor. Topics for some projects are supplied by industry. Students who select one of these topics have the opportunity to work with the industrial sponsor in an actual engineering environment.

Electives

Electives supplement the engineering student's technical program. These electives must be selected in such a way that all General Education "perspective of understanding" requirements are covered. In addition, technical, design, and general electives provide the opportunity for specialization within a chosen field. An assigned departmental faculty advisor must approve selection of electives from engineering, mathematics, science, or business.

Faculty

Professors: Ronald Musiak, Kourosh Rahnamai

Associate Professors: John Burke, Neeraj Magotra, James Moriarty, Steven Northrup

Professors Emeriti: William Bradley, Stephen Crist, Rene Dube, James Masi

Electrical Engineering Strategic Plan

Vision

The electrical engineering program at Western New England University will become nationally recognized for graduating students that have experienced putting theory into practice and are also capable of succeeding in advanced studies.

Mission

The mission of the Electrical Engineering Program is to provide students with a supportive environment that facilitates learning to solve problems in electrical engineering.

The Electrical Engineering Program is committed to excellence in student learning. Graduates of the program will be problem solvers, able to apply engineering principles to electrical and computer systems. The faculty and staff of the program use their background in teaching, research, and industry to prepare students to be successful as they move into the workforce or graduate school.

Educational Objectives

In support of the program objectives for the College of Engineering, the Electrical Engineering program will prepare our students to be proficient at putting theory into practice, capable of lifelong learning, and be aware of the social, ethical, and environmental issues associated with their professional activities.

To ensure these goals, our specific expected accomplishments of our graduates during the first several years following graduation for the program are:

1. To be successful analyzing, designing, or testing electrical systems.
2. To be a productive member of a team.
3. To be assuming leadership roles in their career.
4. To be contributing in professional and civic service.
5. To be pursuing lifelong learning.

Program Outcomes

The outcomes necessary to achieve our program objectives are that our students will have:

- a) an ability to apply knowledge of mathematics, science, and engineering
- b) an ability to design and conduct experiments, as well as to analyze and interpret data
- c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d) an ability to function on multidisciplinary teams
- e) an ability to identify, formulate, and solve engineering problems
- f) an understanding of professional and ethical responsibility
- g) an ability to communicate effectively
- h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- i) a recognition of the need for, and an ability to engage in lifelong learning
- j) a knowledge of contemporary issues
- k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- l) an ability to model, analyze, simulate, and design circuits and systems
- m) an ability to use computer and/or laboratory tools in the design of circuits and systems
- n) an ability to build, test, and debug prototype circuits and systems and analyze results
- o) an ability to use the principles of design to solve open-ended engineering problems

Common Core

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- GUR General University Requirement
- ER Engineering Requirement
- MR Major Requirement

PH xxx	Ethical Perspective (GUR/ER/MR) ²	3
LBC xxx	Learning Beyond the Classroom (GUR)	—
		17

Freshman Year Credit Hours

Fall Semester

ENGL 132*	English Composition I (GUR/ER/MR)	3
ENGR 102*	First Year Engineering Seminar (GUR/ER/MR)	1
ENGR 103*	Introduction to Engineering (GUR/ER/MR)	4
MATH 133*	Calculus I (GUR/ER/MR)	4
PHYS 133*	Mechanics (GUR/ER/MR)	4
PEHR 151	Personal Health and Wellness (GUR)	1
		17

Spring Semester

ENGL 133**	English Composition II (GUR/ER/MR)	3
ENGR 105*	Computer Programming for Engineers (GUR/ER/MR)	3
ENGR 110* **	Data Acquisition and Processing (GUR/ER,MR)	2
MATH 134* **	Calculus II (GUR/ER/MR)	4
PHYS 134* **	Electricity and Magnetism (GUR/ER/MR)	4
PEHR 153-199**	Lifetime Activities Series (GUR)	1
		17

Sophomore Year Credit Hours

Fall Semester

CHEM 105*	General Chemistry I (ER/MR)	4
EE 205* **	Electrical Engineering I (ER/MR)	4
ME 204* **	Engineering Mechanics I (ER/MR)	3
MATH 236* **	Differential Equations (ER/MR)	3
SBP xxx	Social/Behavioral Perspective (GUR/ER/MR) ²	3
		17

Spring Semester

CPE 271*	Digital Design (MR)	4
EE 206* **	Electrical Engineering II(MR)	4
EE 285	Computational Techniques in C	3
MATH 235* **	Calculus III (ER/MR)	3
		17

Electrical Engineering Concentration

Electrical Engineering graduates also have the ability to do the following:

Apply their knowledge and skills in a variety of professional electrical engineering positions dealing with design, manufacturing, and operation of equipment and services including power, control, communication, computer, optical and electro-optical systems, consumer electronics, household appliances, and electrical and electronic devices and materials.

Course of Study

Junior Year Credit Hours

Fall Semester

IE 212* **	Probability and Statistics (ER/MR)	3
EE 301* **	Signals and Systems I (MR)	3
EE 303* **	Introduction to Microelectronics Circuits I (MR)	3
EE 314* **	Fields and Waves (MR)	3
EE 319* **	Electrical Engineering Laboratory I (MR)	2
CUL xxx	Cultural Perspective (GUR/ER/MR) ²	3
		17

Spring Semester

EE 302* **	Signals and Systems II (MR)	3
EE 312* **	Semiconductor Devices (MR)	3
EE 320* **	Introduction to Microelectronic Circuits II (MR)	3
EE 323* **	Electrical Engineering Laboratory IIa (MR)	1
EE 324* **	Electrical Engineering Laboratory IIb (MR)	1
	Technical Elective ¹ (MR)	3
HIST xxx	Historical Perspective (GUR/ER/MR) ²	3
		17

Senior Year	Credit Hours
<i>Fall Semester</i>	
EE 422**	Control Systems (MR) 3
EE 423**	Electronic Communication I (MR) 3
EE 427**	Electrical Engineering Laboratory III (MR) 2
EE 439* **	Professional Awareness (MR) 1
	Design Elective ³ (MR) 3
	Technical Elective ¹ (MR) 3
	15
<i>Spring Semester</i>	
EE 440**	Senior Design Projects (MR) 3
	General Elective ⁴ (MR) 3
	Technical Elective ¹ (MR) 3
	Design Elective ³ (MR) 3
ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ² 3
LBC xxx	Learning Beyond the Classroom (GUR) 3
	15

1 Technical electives are engineering, math, science, or computer courses normally numbered 300 or above and approved by the advisor.

2 General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied (See p. 37).

3 Design electives must be selected from a list published in each semester's course schedule and approved by the advisor.

4 General elective. Selected on approval of the academic advisor.

Total credit hours required for graduation – 132.

The 2.0 required minimum grade point average in the major is based upon all CPE and EE courses pursued as a part of the student's degree program.

Computer Concentration

Electrical Engineering graduates with computer concentration will also have the ability to apply their knowledge and skills in a variety of professional engineering positions dealing with design, manufacturing, operation, and service of small or large computer hardware, software and embedded systems.

Course of Study

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
ER	Engineering Requirement

Junior Year	Credit Hours
<i>Fall Semester</i>	
IE 212* **	Probability and Statistics (ER/MR) 3
CPE 310* **	Machine and Assembly Language (MR) 3
EE 301* **	Signals and Systems I (MR) 3
EE 303* **	Introduction to Microelectronic Circuits I (MR) 3
CPE 305**	Firmware Design for Embedded Systems (MR) 3
EE 319* **	Electrical Engineering Laboratory I (MR) 2
	17

Spring Semester

CPE 355* **	Real-time Embedded Kernels (MR) 3
CPE 360* **	Microprocessor Systems and Design (MR) 4
EE 302* **	Signals and Systems II (MR) 3
EE 320* **	Introduction to Microelectronic Circuits II (MR) 3
EE 323* **	Electrical Engineering Laboratory IIa (MR) 1
CUL xxx	Cultural Perspective (GUR/ER/MR) ¹ 3
	17

Senior Year	Credit Hours
<i>Fall Semester</i>	
CPE 420* **	Computer Architecture (MR) 3
CPE 427**	Computer Engineering Laboratory (MR) 2
EE 439* **	Professional Awareness (MR) 1
HIST xxx	Historical Perspective (GUR/ER/MR) ¹ 3
	Design Elective (MR) ² 3
	Technical Elective (MR) ³ 3
	15

Spring Semester

CPE 470**	Real-time Embedded Controls (MR) 3
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106 Undergraduate Academic Programs

EE 440**	Senior Design Projects (MR)	3
	General Elective ⁴ (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
	Technical Elective (MR) ³	3
LBC xxx	Learning Beyond the Classroom (GUR)	

15

1 General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied. (See p. 37.)

2 Design electives must be selected from a list published in each semester's course schedule and approved by the advisor.

3 Technical electives are engineering, math, science, or computer courses normally numbered 300 or above and approved by the advisor.

4 General elective. Selected on approval of the academic advisor.

Total credit hours required for graduation – 132

The 2.0 required minimum grade point average in the major is based upon all CPE and EE courses pursued as a part of the student's degree program.

Green Engineering Concentration

The Green Energy Concentration will provide Electrical Engineering students an understanding of energy issues critical to our environment in addition to a solid background in Electrical Engineering. The Green Concentration offers electives such as power generation and distribution, energy management, and alternative energy sources. Focus is also provided on integrating renewable forms of energy into the grid. The Green Concentration provides the necessary skills for a successful career in this field. The concentration includes three "green" electives that may be taken within or outside of EE major. The area topics covered by these electives are Power Electronics, Motor Control, and Energy Converter/Inverters. These electives can be selected from an approved list in consultation with the academic advisor.

The EE program has a strong laboratory component and the Green Energy Concentration is no exception. In addition to electrical power stations where students

gain experience in working with AC and DC electrical machines, they also have access to a Renewable Energy laboratory, a shared resource with the ME department. That laboratory contains over a kilowatt of solar panels, a one-kilowatt conventional wind turbine, a weather station, and a geothermal heating and cooling system, all of which is full instrumented.

Course of Study

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
ER	Engineering Requirement

Junior Year

Fall Semester

IE 212* **	Probability and Statistics (ER/MR)	3
EE 301* **	Signals and Systems I (MR)	3
EE 303* ** *	Introduction to Microelectronic Circuits I (MR)	3
EE 319* **	Electrical Engineering Lab I (MR)	2
ME 303* **	Thermodynamics I (MR)	3
CUL xxx	Cultural Perspective (GUR/ER/MR) ¹	3
		<hr/> 17

Spring Semester

EE 302* **	Signals and Systems II (MR)	3
EE 312* **	Semiconductor Devices (MR)	3
EE 320* **	Introduction to Microelectronic Circuits II (MR)	3
EE 323* **	Electrical Engineering Laboratory IIa (MR)	1
EE 324* **	Electrical Engineering Laboratory IIb (MR)	1
EE 336	Electrical Energy Systems	3
HIST xxx	Historical Perspective (GUR/ER/MR) ¹	3
		<hr/> 17

Senior Year

Fall Semester

EE 439* **	Professional Awareness (MR)	1
EE 427**	Electrical Engineering Laboratory III	2

GRN xxx	Green Technical Elective (MR) ³	3
GRN xxx	Green Technical Elective (MR) ³	3
EE 422**	Control Systems (MR)	3
	Design Elective (MR) ²	3
		<hr/> 15
<i>Spring Semester</i>		
EE 440**	Senior Design Projects (MR)	3
ME 318**	Design Solar Energy Systems (MR)	3
	Design Elective (MR) ²	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
	Green General Elective (MR) ⁴	3
LBC xxx		<hr/> 15

1. General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied. (See p. 37.)

2 Design electives must be selected from a list published in each semester's course schedule and approved by the advisor.

3 Green technical electives must be selected from a list published in each semester's course schedule and approved by the advisor.

4 Green general elective. Must be approved by the advisor.

Total credit hours required for graduation – 132

The 2.0 required minimum grade point average in the major is based upon all CPE and EE courses pursued as a part of the student's degree program.

Flex Concentration

The Flex Concentration is intended for students who want to obtain a basic degree in Electrical Engineering (BSEE) but also want to specialize in a related track of particular interest to them. The track options could be from other engineering disciplines or from the College of Arts and Sciences or College of Business or College of Pharmacy.

The course of study for the Flex Concentration is identical to that of the Electrical Engineering Concentration with the added flexibility of selecting two technical electives and a general elective to help diversify the student's area of interest. The first flex technical elective is taken in the Junior Year spring semester, the second flex technical elective is taken in the

Senior Year fall semester and the flex general elective is taken in the Senior Year spring semester.

The three electives must represent a coherent set in areas such as entrepreneurship, mechatronics, marketing, computer science, audio, etc. They must be selected in consultation with the student's academic adviser and department chair in accordance with departmental guidelines.

Five-Year Bachelor/MSEE Program

This program allows undergraduate Electrical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Electrical Engineering (BSEE) and to earn the master's degree in Electrical Engineering (MSEE) with just one additional year of study.

Five-Year Bachelor/MBA Program

This program allows undergraduate Electrical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Electrical Engineering (BSEE) and to earn the master's degree in Business Administration (MBA) with just one additional year of study.

Five-Year Bachelor/MSEM Program

This program allows undergraduate Electrical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Electrical Engineering (BSEE) and to earn the master's degree in Engineering Management (MSEM) with just one additional year of study.

ENGLISH MAJOR

College of Arts and Sciences

General Information

English majors at Western New England University learn to write and speak effectively as they develop awareness of the ethical, moral, cultural, historical, and social issues that are embedded in both traditional and underrepresented literatures. They graduate prepared to enter a variety of academic, educational, corporate, or government settings. Furthermore, as they analyze texts and develop skill in reasoning, conducting research, and formulating clear arguments, they broaden their perspectives, increase their intellectual curiosity and aesthetic appreciation, and identify themselves as active, lifetime learners.

Career Opportunities

Because English majors graduate with writing, speaking, and analytical skills that have been developed through four years, they are highly desirable job applicants in a number of areas. Our graduates have been successfully employed in primary and secondary schools, in writing-centered professions, and in a variety of business settings. Some have continued their studies in English or communications, completing master's and doctoral degrees. Law schools look for English majors because they want students who have learned how to think critically, articulate their ideas clearly, and summarize complex issues succinctly. English is a perfect major for those hoping to complete the University's 3+3 Law program (which enables students to complete both undergraduate and law degrees in six years). A number of our majors have received law degrees and are now practicing that profession.

Writing skills can lead directly to employment in a number of other fields, including journalism, public relations, and technical writing. Many newspaper and magazine editors say they look for English majors because they have been taught how to write for various audiences. Many companies are hiring English majors for technical writing jobs because English majors are taught how to translate ideas and instructions into language that a general audience can understand. Grant

writers are needed in all areas: for academic research, political foundations, and corporate development. The English degree can create significant opportunities in the world of professional writing when coupled with an internship or two.

Additionally, many businesses seek to hire English majors for entry-level positions because they are capable learners who have highly developed analytic skills, broad backgrounds, and excellent communication skills.

Faculty

Professors: Janet Bowdan, Brad Sullivan

Associate Professors: Josie Brown-Rose, William Grohe, Chip Rhodes, Edward Wesp, Delmar Wilcox, Jeffrey Yu

Assistant Professors: Pearl Abraham, Lisa Drnec-Kerr

Professional Educators: Linda Oleksak, Louise Pelletier, Stephanie Wardrop

Professor Emeritus: Shelly Regenbaum

Program Objectives

The English faculty engage students in learning experiences structured to help them develop the following:

Flexibility and Good Judgment

Our students learn to recognize and appreciate different experiences, other cultures, and new points of view. They also learn to examine evidence carefully and to make informed value judgments.

Breadth of Perspective and Depth of Knowledge

Our students examine the literature of different eras and cultures, relating the creative representation of human society in literature to the broader contexts of history, philosophy, and cultural change. They also deepen and enrich their understanding of at least one literary tradition and are encouraged to pursue more advanced study in particular areas of interest.

Ability to Analyze and Synthesize

Our students use critical thinking to analyze texts and situations, breaking them down into manageable "pieces." They also seek patterns, make significant connections, and reconnect the parts they analyze into meaningful wholes.

Ability to Learn and to Share Learning

Our students gather, value, and synthesize information in their effort to understand literary works and cultural trends. They also learn the rhetorical skill necessary to present what they learn to others, to share their learning instead of simply “collecting” it.

Self-confidence and Self-assessment

Our students are encouraged to be creative, to use their imaginations, and to take chances. They also receive rigorous critical feedback and are encouraged to apply high standards to everything they do. To learn, one must let go of the idea that one knows everything already. Understanding that, we seek to establish a learning environment that is both fun and serious.

Technological Comfort and Technological Questioning

Our students learn to be comfortable with computers, with word-processing software, and with the process of writing and thinking “by computer.” But they are also encouraged to question the value and necessity of new technologies and their applications—and to have alternatives on hand if the technology has crashed.

Problem-solving and Problem Recognition

Our students learn how to solve problems, to interpret new situations, and to “make sense” of complexity. They also learn how to recognize problems, even in areas that are not usually questioned. We aim to help students recognize assumptions made by institutions and cultures, to question and reassess those value judgments for themselves, and to take an active role in reshaping them.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

The following classes are required for all English Majors:

ENGL 231	British Literature I
ENGL 232	British Literature II
ENGL 251	American Literature I
ENGL 252	American Literature II
ENGL 302	Approaches to the Study of Literature

ENGL 314	Shakespeare: Plays and Poems — or —
ENGL 315	Shakespeare: The Tragedies — or —
ENGL 316	Shakespeare: The Comedies and Histories
ENGL xxx	Any upper division writing course
ENGL 410	English Seminar

Four additional courses, of which one must treat: a major author or authors, and another must treat a historically under represented literature.

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year		Credit Hours
<i>Fall Semester</i>		
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 1xx	Mathematical Analysis (GUR)	3
GEN xxx	General Elective (GUR)	3
CS 13x	Computer Competence (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15
<i>Spring Semester</i>		
ENGL 133	English Composition II (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
MATH 1xx	Mathematical Analysis (GUR)	3
PH xxx	Ethical Perspective (GUR)	3
GEN xxx	General Elective (GUR)	3
HIST xxx	Historical Perspective (GUR)	3
		<hr/> 16

Sophomore Year		Credit Hours
<i>Fall Semester</i>		
ENGL xxx	Two literature survey courses from among ENGL 231, 232, 251 or 252 (MR)	6

SBP xxx	Social/Behavioral Science Perspective (GUR)	3
ILP xxx	Integrated Liberal and Professional Perspective	
LAB xxx	Laboratory Science (GUR)	3
		<hr/> 15

Spring Semester

ENGL xxx	Two Literature survey courses from among ENGL 231, 232, 251 or 252 (MR)	6
ENGL 302	Approaches to the Study of Literature Behavioral Science Requirement	3
WIC 2xx	Writing Intensive course	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
		<hr/> 15

Junior Year**Credit Hours***Fall Semester*

WIC 3xx	Writing Intensive course	3
ENGL xxx	English Elective (MR)	3
ENGL 314	Shakespeare: Plays and Poems — or —	
ENGL 315	Shakespeare: The Tragedies — or —	
ENGL 316	Shakespeare: The Comedies and Histories (MR)	3
CUL xxx	Cultural/Aesthetic Studies Perspective (GUR)	3
GEN xxx	General Elective (GUR)	3
		<hr/> 15

Spring Semester

ENGL xxx	Any upper level writing course	3
ENGL xxx	English Electives (MR)	6
GEN xxx	General Electives	6
		<hr/> 15

Senior Year**Credit Hours***Fall Semester*

ENGL xxx	English Electives (MR)	6
GEN 3xx	General Electives	9
		<hr/> 15

Spring Semester

ENGL 410	English Seminar (MR)	3
GEN 3xx	Electives	12
		<hr/> 15

FINANCE MAJOR**College of Business****General Information**

Courses in finance provide the professional education for a wide spectrum of careers in finance. Accounting, economics, quantitative analysis, and studies of the financial environment are integrated to form both the skills required for traditional financial functions and the ability to stay abreast of a rapidly evolving technological environment.

By judicious selection of elective courses, the student, with the assistance of an academic advisor, can chart a course of specialization in the areas of investment management, personal financial management, credit analysis, or corporate financial management.

Students are encouraged to participate in internships as part of the finance major.

Career Preparation

In order to help students understand careers available to Finance majors, faculty in the Finance department designed activities to guide students from career exploration through career implementation. Examples of some of these include:

- Career Exploration in the freshman year is accomplished in First Year Seminar where students are introduced to accounting career opportunities.
- Career Investigation in the sophomore year courses includes classroom assignments in FIN 214.
- Career Determination in the junior year engages students in résumé and cover letter writing and mock interviews.
- Career Implementation in the senior year includes examination of professional certifications.

Career Opportunities

Finance majors find positions in brokerage firms, personal financial planning, banking, corporate financial management, international finance, underwriting, portfolio management, and insurance. Students are encouraged to take professional exams after graduation and to earn advanced business degrees.

Faculty

Professors: William Bosworth, Sharon Lee

Assistant Professors: Milos Vulanovic, Yong Wang

Program Learning Goals

Having completed a major in finance, the student will have the ability to:

1. Understand and synthesize the basic concepts and theories of finance.
2. Use computer-based tools to perform financial analysis and assist with financial decisions.
3. Understand the monetary system, monetary policy, and regulatory environment.
4. Demonstrate knowledge of the investment environment, and the global and the domestic financial markets.
5. Demonstrate the ability to determine strategies for corporate decision-making based on an accurate assessment of risks and rewards.

Course of Study

1. Core Requirements for All Business Majors (83 credit hours) See p. 42.
— plus —
2. Required Finance courses (15 credit hours)

FIN 312	Financial Markets and Institutions
FIN 417	Investments
FIN 418	Security Analysis
FIN 320	Intermediate Corporation Finance
FIN 350	Advanced Corporation Finance
	— plus —
3. Other required courses (3 credit hours)

EC 311	Money and Banking
	— or —
EC 215	Macroeconomics
	— plus —
4. Electives (21 credit hours)

FIN or AC 3xx/4xx	Elective (6 cr.)
BUS	Electives (3 cr.)
	Non-Business Electives (12 cr.)

Total credit hours required for graduation – 122

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year.

Students must take 33 credit hours of course work in 300/400 level courses. All students must take 12 hours of upper level (300/400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are as follows:

All FIN and AC courses that are applied toward the degree.

Suggested Sequence of Courses

Notes:

MR	Major Requirement
GUR	General University Requirement
BUSR	College of Business Requirement

Freshman Year

		Credit Hours
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132*	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	— or —
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR)	— or —
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/>
		16

Spring Semester

ENGL 133*	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	— or —

FORENSIC BIOLOGY MAJOR

College of Arts and Sciences

General Information

The forensic biology curriculum is designed to provide the student with a solid background in the scientific principles that underlie forensic techniques. Skills are acquired through coursework augmented by practical laboratory experience.

Career Opportunities

A baccalaureate degree in forensic biology provides diverse opportunities for employment as forensic scientists or as laboratory analysts or for advanced training in forensics and related fields.

Faculty

Professors: Anne Poirot, Lorraine Sartori, David Savickas

Associate Professors: Daniel Hatten, William Macanka, Karl Martini, Alexander Wurm

Assistant Professors: John Drawec, Dawn Holmes, Anna Klimes, Kathryn Lipson, Suzanna Milheiro, Jessica Rocheleau, Burt Rosenman, Isaac Stayton, Shubha Tewari,

Professional Educator: Karl Sternberg

Forensic Biology Objectives:

To demonstrate

1. knowledge of basic structure and functioning of cells.
2. To understand the principles and mathematical analysis of Mendelian and non-Mendelian inheritance.
3. To understand the structure and function of nucleic acids and molecular controls.
4. To collect and preserve forensic evidence using established protocol.
5. Plan and perform analyses of both biological and nonbiological forensic evidence.
6. Apply chemical, physical, and biological principles to the design of procedures for the analysis of forensic evidence.

7. Communicate clearly and effectively the results and reliability of an analysis of forensic evidence.
8. Function as an ethical member of the criminal justice system.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

1. Required Science courses: (70 credit hours)

BIO 107	General Biology I
BIO 117	General Biology Laboratory I
BIO 401	Recombinant DNA/ Fingerprinting
BIO 306	Genetics
BIO 203	Microbiology
BIO 310	Cell Biology
CHEM 105/106	General Chemistry I & II
CHEM 209/210	Organic Chemistry I & II
CHEM 211/221	Analytical Chemistry with Laboratory
CHEM 219/220	Organic Chemistry Laboratories I & II
CHEM 314	Biochemistry
CHEM 324	Biochemistry Laboratory
FS 201	Introduction to Forensics
FS 240	Scientific Evidence
FS 310	Crime Scene Processing
FS 325	Criminalistics I
FS 426	Criminalistics II
FS 480	Forensic Science Internship — or —
FS 333	Independent Study
PHYS 123	Life Science Physics I
PHYS 124	Life Science Physics II
2. Required courses in Math and Computer and Criminal Justice courses

Science: (12 credit hours)	
MATH 123	Calculus I
MATH 120	Introductory Statistics for the Arts and Sciences
CJ 101	Introduction to Criminal Justice
CS xxx	Computer Science

The 2.0 required grade point average in the major will be based upon all BIO, CHEM, and FS courses pursued as a part of the student's degree program

Suggested Sequence of Courses

Notes:

The suggested sequence of courses in years two, three, and four is an example only. Some offerings for these years will alternate and the exact sequence will require consultation with the faculty and deans.

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year Credit Hours*Fall Semester*

BIO 107*	General Biology I (GUR/MR)	3
BIO 117*	General Biology Laboratory I (MR)	1
CHEM 105*	General Chemistry I (MR)	4
ENGL 132	English Composition I(GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 123	Calculus I Mathematics (GUR/MR)	3
		<hr/>
		16

Spring Semester

CHEM 106**	General Chemistry II (MR)	4
CJ 101	Introduction to Criminal Justice (MR)	3
ENGL 133**	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR/MR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/>
		14

Sophomore Year Credit Hours*Fall Semester*

CHEM 209**	Organic Chemistry I (MR)	3
CHEM 219**	Organic Chemistry Laboratory I (MR)	1
WIC 2xx	Writing Intensive course (A&SR)	3
FS 201	Introduction to Forensics	3
PH 208	Ethics (MR) and Ethical Perspective (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/>
		14

Spring Semester

ARTS xxx	Aesthetics Perspective (GUR)	3
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BIO 203	Microbiology (MR)	4
CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CS xxx	Computer Competence Requirement(GUR)	3
FS 240	Scientific Evidence (MR)	3
		<hr/>
		17

Junior Year Credit Hours*Fall Semester*

BIO 306	Genetics (MR)	4
FS 310	Crime Scene Processing (MR)	3
PHYS 123	Life Science Physics I (MR)	4
CHEM 211/221	Analytical Chemistry with lab (MR)	4
		<hr/>
		15

Spring Semester

BIO 310	Cell Biology (MR)	4
CHEM314	Biochemistry (MR)	3
CHEM 324	Biochemistry Laboratory (MR)	1
WIC 3xx	Writing Intensive course (A&SR)	3
PHYS 124	Life Science Physics II (MR)	4
		<hr/>
		15

Senior Year Credit Hours*Fall Semester*

BIO 401	Recombinant DNA/ Fingerprinting (MR)	3
CUL xxx	Cultural Studies Perspective	3
HIST xxx	Historical Perspective(GUR)	3
GEN xxx	General Elective	3
FS 325	Criminalistics I (MR)	3
		<hr/>
		15

Spring Semester

FS 426	Criminalistics II with Laboratory (MR)	4
FS 480	Forensic Science Internship (MR)	3
	— or —	
FS 333	Independent Study in Forensics (MR)	3
GEN xxx	General Elective	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR)	3
GEN xxx	General Elective	3
		<hr/>
		16

Total 122

FORENSIC CHEMISTRY MAJOR

College of Arts and Sciences

General Information

The forensic chemistry curriculum is designed to provide the student with a solid background in the chemical principles that underlie forensic techniques. Skills are acquired through coursework augmented by practical laboratory experience.

Career Opportunities

A baccalaureate degree in forensic chemistry provides diverse opportunities for employment as forensic scientists or as laboratory analysts or for advanced training in forensics and related fields.

Faculty

Professors: Anne Poirot, Lorraine Sartori, David Savickas

Associate Professors: Daniel Hatten, William Macanka, Karl Martini, Alexander Wurm

Assistant Professor: John Drawec, Dawn Holmes, Anna Klimes, Kathryn Lipson, Suzanna Milheiro, Jessica Rocheleau, Burt Rosenman, Isaac Stayton, Shubha Tewari,

Professional Educator: Karl Sternberg

Forensic Chemistry Objectives:

1. Perform accurate stoichiometric and chemical equilibrium calculations.
2. Predict and explain the reactivity of an organic or inorganic compound from a knowledge of its structure.
3. Assess the thermodynamic and kinetic stability of a chemical system.
4. Propose a reasonable mechanism for an organic or inorganic reaction.
5. Apply basic quantum mechanical concepts to the study of chemical systems.
6. Synthesize and characterize inorganic and organic compounds.
7. Design and perform a qualitative and quantitative analysis of a sample of matter, using both wet and instrumental methods.

8. Plan and execute experiments through the proper use of library resources.
9. Analyze data statistically and assess reliability of results.
10. Communicate effectively through oral and written reports.
11. Collect and preserve forensic evidence using established protocol.
12. Plan and perform analyses of both biological and non-biological forensic evidence.
13. Apply chemical, physical, and biological principles to the design of procedures for the analysis of forensic evidence.
14. Communicate clearly and effectively the results and reliability of an analysis of forensic evidence.
15. Function as an ethical member of the criminal justice system.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p.42.

Course of Study

1. Required Science courses: (70 credit hours)

BIO 107	General Biology I
BIO 117	General Biology Laboratory I
CHEM 105/106	General Chemistry I & II
CHEM 209/210	Organic Chemistry I & II
CHEM 219/220	Organic Chemistry Laboratories I & II
CHEM 211/221	Analytical Chemistry and Laboratory
CHEM 312/322	Instrumental Analysis and Laboratory
CHEM 402	Toxicology
CHEM 314/324	Biochemistry and Laboratory
CHEM 421/431	Inorganic Chemistry with lab
CHEM 317/327	Physical Chemistry I
FS 201	Introduction to Forensics
FS 240	Scientific Evidence
FS 310	Crime Scene Processing
FS 325	Criminalistics I
FS 426	Criminalistics II

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FS 480	Forensic Science Internship (3 cr.) Or
FS 333	Independent Study (3 cr.)
PHYS 123	Life Science Physics I 4cr
PHYS 124	Life Science Physics II 4 cr.

2. Required courses in Math and Computer Science (12)

MATH 123	Calculus I
MATH 120	Introductory Statistics for the Arts and Sciences
CJ 101	Introduction to Criminal Justice
CS xxx	Computer Competence Requirement

The 2.0 required grade point average in the major will be based upon all BIO, CHEM, and FS courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

Notes:

The suggested sequence of courses in years two, three, and four is an example only. Some offerings for these years will alternate and the exact sequence will require consultation with the faculty and deans.

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year

Credit Hours

Fall Semester

BIO 107*	General Biology I (GUR/MR)	3
BIO 117*	General Biology Laboratory I (MR)	1
CHEM 105*	General Chemistry I (MR)	4
ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 123	Calculus I Mathematics (GUR/MR)	3
		<hr/> 16

Spring Semester

CJ 101	Introduction to Criminal Justice (MR)	3
CHEM 106**	General Chemistry II (MR)	4
ENGL 133**	English Composition II (GUR)	3
		<hr/> 15

MATH 120	Introductory Statistics for the Arts and Sciences (GUR/MR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 14

Sophomore Year

Credit Hours

Fall Semester

CHEM 209**	Organic Chemistry I (MR)	3
CHEM 219**	Organic Chemistry Laboratory I (MR)	1
FS 201	Introduction to Forensics	3
PH 208	Ethics Ethical Perspective (GUR)	3
HIST xxx	Historical Perspective (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/> 14

Spring Semester

FS 240	Scientific Evidence (MR)	3
CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CHEM 211	Analytical Chemistry (MR)	3
CHEM 221	Analytical Chemistry Laboratory (MR)	1
WIC 2xx	Writing Intensive course (A&SR)	3
		<hr/> 14

Junior Year

Credit Hours

Fall Semester

CUL xxx	Cultural Studies Perspective	3
CS xxx	Computer Competence Requirement (GUR)	3
GEN xxx	General Elective	3
FS 310	Crime Scene Processing (MR)	3
PHYS 123	Life Science Physics I (MR)	4
		<hr/> 16

Spring Semester

CHEM312, 322	Instrumental Analysis and Laboratory (MR)	4
PHYS 124	Life Science Physics II	4
CHEM314/324	Biochemistry / Biochemistry Lab (MR)	4
WIC 3xx	Writing Intensive course (A&SR)	3
		<hr/> 15

Senior Year	Credit Hours
<i>Fall Semester</i>	
CHEM 317/327	Physical Chemistry I with lab (MR) 4
FS 325	Criminalistics I (MR) 3
CHEM 402	Toxicology (MR) 3
GEN xxx	General Elective 3
ARTS xxx	Aesthetics Perspective (GUR) 3
	<hr/> 16
<i>Spring Semester</i>	
FS 426	Criminalistics II (MR) 4
FS 480	Forensic Science Internship (MR) 3
	— or —
FS 333	Independent Study in Forensic Science (MR) 3
GEN xxx	General Elective 3
ILP xxx	Integrated Liberal and Prof. Perspectives (GUR) 3
CHEM 421/431	Inorganic Chemistry with lab (MR) 4
	<hr/> 17
	<hr/> Total 122

GENERAL BUSINESS MAJOR

College of Business

General Information

The program in General Business provides students with a broad exposure to the functional areas of business administration while permitting wide latitude in the selection of additional courses according to individual interests. Students will develop the skills and competencies necessary for success across the broad spectrum of business organizations. Students can select one of three concentrations which will allow them to focus their studies in 1) Entrepreneurship 2) International Business or 3) Sustainability Management.

Career Preparation

In order to help students understand careers available to General Business majors, faculty designed activities to guide students from career exploration through career implementation. Examples of some of these include:

- a) Career Exploration in the freshman year is accomplished in MAN 101 through guest speakers from local businesses
- b) Career Investigation in the sophomore year courses includes personality assessment linked to career choices in MK 200
- c) Career Determination in the junior year engages students in resume review and mock interviews in MAN 323
- d) Career Implementation in the senior year involves a required internship and participation in discussion of career requirements and insights from internship placements in BUS 480.

Career Opportunities

General Business majors are prepared to enter the business world in entry level positions in corporations, agencies, or small business. Since their background is broad, they are later able to specialize either by entering graduate school or, more typically, by participating in training programs provided by employers.

For students interested in teaching business at the secondary school level, see the program of study listed under the major entitled Secondary Education-General Business Major on p. 96.

Faculty

Faculty in this major come from all departments in the College of Business.

Program Learning Goals

Having completed a major in General Business, the student will have the ability to:

1. Understand and synthesize the basic concepts and theories of each functional area of a business that contribute to its overall success.
2. Understand the key elements of professionalism and ethical conduct in businesses and other organizations.
3. Demonstrate skill and competency in problem solving, decision making, and managing conflict.
4. Demonstrate skill and competency in establishing goals and leading people to work together toward the attainment of those goals.

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (83 credit hours) See p. 42
— plus —
2. Required Management and Business Law courses (12 credit hours)

BL 308	Labor Management Relations
BL 424	Business Law for Human Resource Management
MAN 323	Human Resource Management
	— plus —
BUS 480	Business Internship*
3. Electives (27 credit hours)

BUS xxx	Business Electives (12 cr.)
NBEL xxx	Non-Business Electives(15 cr.)

Total credit hours required for graduation – 122.

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year.

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way as to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are as follows: All MAN and BL courses as well as BUS 450.

**The General Business major is required to complete an internship in any of the areas represented by the College of Business.*

Suggested Sequence of Courses

Notes:

MR	Major Requirement
GUR	General University Requirement
BUSR	College of Business Requirement

Freshman Year

Fall Semester

		Credit Hours
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	
	— or —	
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR)	
	— or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		16

Spring Semester

ENGL 133	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	
	— or —	
MATH 124	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
COMM 100	Principles of Communication	3
MAN 101	Management and Organizational Behavior (BUSR)	
	— or —	

BIS 102	Problem Solving with Business Tools (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	— or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/> 16

<i>Spring Semester</i>	
BL 308	Labor Management Relations (MR) 3
MAN 323	Human Resource Management (MR) 3
BUS xxx	Business Elective (MR) 3
CUL xxx	Cultural Perspective (GUR) 3
ILP xxx	Integrated Liberal and Professional Perspective 3
	<hr/> 15

Sophomore Year **Credit Hours**

<i>Fall Semester</i>	
AC 201	Financial Reporting (BUSR) 3
MK 200	Principles of Marketing (BUSR) 3
BIS 202	Introduction to Business Information Systems (BUSR) 3
EC 111	Principles of Economics I (BUSR) 3
BL 201	Introduction to Business Law (BUSR) 3
	<hr/> 15

<i>Spring Semester</i>	
AC 202	Managerial Accounting (BUSR) 3
BIS 220	Introduction to Business Statistics (BUSR) 3
FIN 214	Introduction to Finance (BUSR) 3
EC 112	Principles of Economics II (BUSR) 3
MAN 240	Business and Society 3
	— or —
PH 211	Business Ethics (BUSR)
LBC 2xx	Learning Beyond the Classroom
	<hr/> 15

Junior Year **Credit Hours**

<i>Fall Semester</i>	
BUS 301	Managing the Established Enterprise (BUSR) 3
	— or —
BUS 312	Integrated Business Operations with SAP 3
BUS xxx	Business Elective (MR) 3
NBEL xxx	Non-Business Elective (BUSR) 3
NBEL xxx	Non-Business Elective (BUSR) 3
LAB xxx	Natural Science Perspective (GUR) 3
	<hr/> 15

Senior Year **Credit Hours**

<i>Fall Semester</i>	
BL 424	Business Law for Human Resource Management (MR) 3
BIS 310	Quality and Operations Management (BUSR) 3
	— or —
BIS 312	Quality and Operations Management with SAP 3
BUS xxx	Business Elective (MR) 3
NBEL xxx	Non-Business Elective (BUSR) 3
LAB/NSP xxx	Natural Science Perspective (GUR) 3
	<hr/> 15

<i>Spring Semester</i>	
BUS 450	Business Strategy (BUSR) 3
BUS 480	Business Internship (MR) 3
BUS xxx	Business Elective (MR) 3
NBEL xxx	Non-Business Elective (BUSR) 3
NBEL xxx	Non-Business Elective (BUSR) 3
LBC 4xx	Learning Beyond the Classroom
	<hr/> 15

Concentration in Entrepreneurship

Suggested Sequence of Courses

- Notes:
- MR Major Requirement
 - GUR General University Requirement
 - BUSR College of Business Requirement
 - CR Concentration Requirement

Freshman Year **Credit Hours**

<i>Fall Semester</i>	
BUS 101	First Year Seminar (GUR/ BUSR) 3

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ENGL 132	English Composition I (GUR)	3	BL 201	Introduction to Business Law (BUSR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)				15
	— or —		<i>Spring Semester</i>		
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3	AC 202	Managerial Accounting (BUSR)	3
HIST xxx	Historical Perspective (GUR)	3	BIS 220	Introduction to Business Statistics (BUSR)	3
MAN 101	Management and Organizational Behavior (BUSR)		FIN 214	Introduction to Finance (BUSR)	3
	— or —		EC 112	Principles of Economics II (BUSR)	3
BIS 102	Problem Solving with Business Tools (BUSR)	3	MAN 240	Business and Society	3
PEHR 151	Personal Health and Wellness (GUR)	1	PH 211	Business Ethics (BUSR)	
		16	LBC 2xx	Learning Beyond the Classroom	15
<i>Spring Semester</i>			Junior Year		
ENGL 133	English Composition II (GUR)	3	<i>Fall Semester</i>		
MATH 112	Analysis for Business and Economics II (GUR/BUSR)		BUS 301	Managing the Established Enterprise (BUSR)	3
	— or —			— or —	
MATH 124	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3	BUS 312	Integrated Business Operations with SAP	
COMM 100	Principles of Communication	3	MAN 251	Entrepreneurship and Innovation (CR)	3
MAN 101	Management and Organizational Behavior (BUSR)		NBEL xxx	Non-Business Elective (BUSR)	3
	— or —		NBEL xxx	Non-Business Elective (BUSR)	3
BIS 102	Problem Solving with Business Tools (BUSR)	3	LAB xxx	Natural Science Perspective (GUR)	3
PSY 101	Introduction to Psychology (BUSR)				15
	— or —		<i>Spring Semester</i>		
SO 101	Introduction to Sociology (BUSR)	3	BL 308	Labor Management Relations (MR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1	MAN 323	Human Resource Management (MR)	3
		16	BUS xxx	Entrepreneurship Elective (CR)*	3
			CUL xxx	Cultural Perspective (GUR)	3
			ILP xxx	Integrated Liberal and Professional Perspective	3
					15
Sophomore Year			Senior Year		
			<i>Fall Semester</i>		
AC 201	Financial Reporting (BUSR)	3	BL 424	Business Law for Human Resource Management (MR)	3
MK 200	Principles of Marketing (BUSR)	3			
BIS 202	Introduction to Business Information Systems (BUSR)	3	BIS 310	Quality and Operations Management (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3		— or —	

BIS 312	Quality and Operations Management with SAP		PEHR 151	Personal Health and Wellness (GUR)	1
BUS xxx	Entrepreneurship Elective (MR)*	3			<hr/> 16
NBEL xxx	Non-Business Elective (BUSR)	3	<i>Spring Semester</i>		
LAB/NSP xxx	Natural Science Perspective (GUR)	3	ENGL 133	English Composition II (GUR)	3
		<hr/> 15	MATH 112	Analysis for Business and Economics II (GUR/BUSR)	
				— or —	
<i>Spring Semester</i>			MATH 124	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
BUS 450	Business Strategy (BUSR)	3	COMM 100	Principles of Communication	3
BUS 480	Entrepreneurship Internship (CR)	3	MAN 101	Management and Organizational Behavior (BUSR)	
BUS xxx	Entrepreneurship Elective (CR)*	3		— or —	
NBEL xxx	Non-Business Elective (BUSR)	3	BIS 102	Problem Solving with Business Tools (BUSR)	3
NBEL xxx	Non-Business Elective (BUSR)	3	PSY 101	Introduction to Psychology (BUSR)	
LBC 4xx	Learning Beyond the Classroom			— or —	
		<hr/> 15	SO 101	Introduction to Sociology (BUSR)	3

*MAN 320, MK 260, MK 326, FIN 330, MAN 380

Concentration in International Business

PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/> 16

Suggested Sequence of Courses

Notes:

- MR Major Requirement
- GUR General University Requirement
- BUSR College of Business Requirement
- CR Concentration Requirement

Freshman Year Credit Hours

<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	
	— or —	
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR)	
	— or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3

Sophomore Year

Credit Hours

<i>Fall Semester</i>		
AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
BL 201	Introduction to Business Law (BUSR)	3
		<hr/> 15
<i>Spring Semester</i>		
AC 202	Managerial Accounting (BUSR)	3
BIS 220	Introduction to Business Statistics (BUSR)	3
FIN 214	Introduction to Finance (BUSR)	3
EC 112	Principles of Economics II (BUSR)	3
MAN 240	Business and Society	3
	— or —	
PH 211	Business Ethics (BUSR)	

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LBC 2xx	Learning Beyond the Classroom	— 15
Junior Year	Credit Hours	
<i>Fall Semester</i>		
BUS 301	Managing the Established Enterprise(BUSR) — or —	3
BUS 312	Integrated Business Operations with SAP	
MAN 311	International Management — or —	— 15
MK 311	Multinational Marketing — or —	
FIN 322	International Finance (CR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
NBEL xxx	International Elective (CR)	3
LAB xxx	Natural Science Perspective (GUR)	3
		— 15

<i>Spring Semester</i>		
BL 308	Labor Management Relations (MR)	3
MAN 323	Human Resource Management (MR)	3
MAN 311	International Management — or —	
MK 311	Multinational Marketing — or —	
FIN 322	International Finance (CR)	3
CUL xxx	Cultural Perspective (GUR)	3
ILP 230	Integrated Liberal and Professional Perspective (CR)	3
		— 15

Senior Year	Credit Hours	
<i>Fall Semester</i>		
BL 424	Business Law for Human Resource Management (MR)	3
BIS 310	Quality and Operations Management (BUSR) — or —	3
BIS 312	Quality and Operations Management with SAP	
BUS xxx	Business Elective (MR)	3
NBEL xxx	International Business Elective (CR)*	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
		— 15

<i>Spring Semester</i>		
BUS 450	Business Strategy (BUSR)	3
BUS 480	Business Internship (CR) (International)	3
BUS xxx	Business Elective (MR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
LBC 4xx	Learning Beyond the Classroom	
		— 15

*International Business Elective: BUS 315/326, CUL 315/316, POSC 203, POSC 340, EC 371, EC 372, COMM 348

Concentration in Sustainability Management

Suggested Sequence of Courses

- Notes:
- MR Major Requirement
 - GUR General University Requirement
 - BUSR College of Business Requirement
 - CR Concentration Requirement

Freshman Year	Credit Hours	
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/ BUSR)	3
ENGL 132	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR) — or —	
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR) — or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		— 16

<i>Spring Semester</i>		
ENGL 133	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	

HISTORY MAJOR

College of Arts and Sciences

General Information

The study of history provides students with insight into the political, social, economic, and cultural forces that have shaped the modern world. The History program is designed to give students an introduction to world civilizations and to the history of the United States. Course offerings and distribution requirements ensure breadth of study by providing exposure to non-Western history as well as advanced courses in American and European history.

Career Opportunities

Students who major in History can pursue a variety of careers. Our graduates have become teachers, researchers, and journalists. They work in libraries and government agencies including the diplomatic service. Others have found opportunities in business where the skills gained in the study of history (research, analysis, and writing) are valued. Many graduates attend law school or have pursued advanced degrees in history.

Faculty

Professors: John Anzalotti, John Seung-Ho Baik, Marc Dawson, Theodore South

Associate Professors: Jonathan Beagle, Meri Clark, Catherine Plum

Program Objectives

1. To provide students with a breadth of knowledge of the development of world civilizations.
2. To give a solid introduction to the history of the United States.
3. To expose students at an advanced level to the histories of Europe, the United States, and non-Western countries.
4. To give students the research skills to work with primary and secondary sources.
5. To give students the ability to construct and write a coherent, logical, and grammatical argument.
6. To develop critical reading skills.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

1. Required Courses (19 credit hours)
 - HIST 105/106 World Civilization I-II
 - HIST 111 U.S. History to 1877
 - HIST 112 U.S. History 1878 to Present
 - HIST 2xx Methods Seminar (sophomore year)
 - HIST 490 Seminar in History (senior year)
 - or —
 - HIST 495/496 Senior Thesis
2. Twenty-one credit hours of history of which at least 12 credit hours must be at the 300-level. These 21 hours must include at least six hours each of courses in non-Western, European, and American history.
3. Eighteen additional credit hours in social sciences including at least three credit hours each of economics, Geography 101, political science, psychology, and sociology.

The 2.0 required grade point average in the major is based upon all HIST courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

The schedule of courses below is a sample sequence for a history major. Many students become history majors in their sophomore year and fulfill the major requirements without academic sacrifice.

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year	Credit Hours
<i>Fall Semester</i>	
HIST 105	World Civilization I (GUR/MR) 3
HIST 111	US History to 1877 3
MATH 1xx*	Mathematical Analysis (GUR) 3

ENGL 132*	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
		<hr/> 14

Spring Semester

HIST 106	World Civilization II (MR)	3
HIST 112	US History 1878 to Present	3
MATH xxx **	Mathematical Analysis (GUR)	3
GEN xxx	General Elective	3
ENGL 133**	English Composition II (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 16

Sophomore Year **Credit Hours**

Fall Semester

POSC 102	American National Government	3
EC 111	Principles of Economics I	3
LAB xxx	Laboratory Science Requirement (GUR)	3
CUL 2xx	Cultural Studies Perspective (GUR)	3
GEN xxx	General Elective	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/> 16

Spring Semester

SO 101	Introduction to Sociology	3
CS 13x	Computer Competency (GUR)	3
PSY 101	Introduction to Psychology	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
HIST 2xx	Methods Seminar (MR)	3
		<hr/> 15

Junior Year **Credit Hours**

Fall Semester

PH xxx	Ethical Perspective (GUR)	3
HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
GEOG 101	Introduction to Geography (MR)	3
		<hr/> 15

Spring Semester

HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
SBP xxx	Social/Behavioral Science Perspective (GUR)	3
GEN xxx	General Elective	3
HIST xxx	History Elective (MR)	3
		<hr/> 15

Senior Year **Credit Hours**

Fall Semester

HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective (GUR)	3
GEN xxx	General Elective	3
		<hr/> 15

Spring Semester

HIST 3xx	History Elective (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
HIST 490**	Seminar in History (MR)	4
		<hr/> 16

*Two courses must be designated as writing intensive courses.

INDUSTRIAL ENGINEERING MAJOR

College of Engineering

General Information

The Industrial Engineering curriculum prepares engineers to design, improve, install, and operate integrated systems of people, materials, and equipment needed by industry, commerce, and society. Industrial engineers prevent anticipated problems as well as solving current problems by applying the principles of engineering science, operations research, computer science, work analysis, product and process design and planning, human factors, quality assurance, and management. The curriculum is designed to provide strength in mathematics, basic science, and engineering science plus a carefully coordinated set of courses that are particularly relevant to the professional industrial engineer.

While providing Industrial Engineering students with a theoretical base, the IE program also emphasizes practical application of engineering principles to real problems and products. The program provides intensive laboratory and hands-on project work sponsored by local companies each year. Students obtain significant hands-on project experience before they graduate.

The program leading to the B.S.I.E. degree is accredited by the Engineering Accreditation Commission of ABET Inc. 111 Market Place, Suite 1050, Baltimore, MD, 21202-4012, 410-347-7700.

Career Opportunities

Upon completion, students are prepared to pursue a wide variety of professional opportunities in industrial, commercial, and public service enterprises. The curriculum provides an excellent background for advanced study in industrial engineering, operations research, computer science, engineering management, business administration, law, and other fields.

Faculty

Professors: S. Hossein Cheraghi, Richard Grabiec, Eric Haffner, Thomas Keyser

Associate Professor: Abdul Kamal

Assistant Professor: Julie J. Drzymalski

Professor Emeritus: J. Byron Nelson

The Department of Industrial Engineering and Engineering Management's primary goal is to effectively teach industrial engineering at the undergraduate level and engineering management at the graduate level. The department is guided by our Advisory Board which consists of Alumni, Faculty from other Industrial Engineering programs, and working professionals from local, regional, and national companies. We are very proud of our students who continue to be very successful sought after individuals who constantly serve as ambassadors for our program. Industrial Engineering (IE) at Western New England University will be a regional and national leader in communicating engineering knowledge and innovation associated with designing, operating, and improving processes for producing and delivering products and services. Industrial Engineering will educate the utilization of resources, including people, equipment, capital, materials, information, and energy. This will be accomplished by the use of classroom, and laboratory instruction supplemented by repeated exposure to actual industrial projects in "learning beyond the classroom" opportunities.

Program Mission

As a strategic partner in alliance with the mission of the University, we strive to educate engineers who have the ability to help their organizations make the most effective use of resources, including people, equipment, capital, materials, information, and energy. Our graduates will enable their organization to be productive, flexible, and customer oriented. They will apply engineering skills to design effective systems and to devise procedures with which to operate these systems. And, they will continuously strive to improve both themselves through continuous education, and their organizations through avoidance and elimination of harmful or wasteful practices. Specifically, IE seeks to:

1. Educate engineers who will be successful in their professional careers.
2. Educate engineers who understand the metrics of an organization and what it takes to be a successful member of that organization.

3. Provide selected research and services to industry and government to meet their specific needs.
4. Contribute to the advancement of the IE profession through faculty leadership.
5. Enhance the overall reputation of the College of Engineering and Western New England University.

Educational Objectives

The Educational Objectives of the Industrial Engineering program describe the expected achievements of graduates four to six years after graduation. Graduates of the BSIE program will achieve the following:

1. Successful application of contemporary tools, knowledge, experience, and critical thinking to effectively solve engineering problems.
2. Implementation of effective solutions which successfully integrate people, materials, information, equipment, capital, and energy.
3. Effective collaboration and communication in individual and team settings.
4. Contribute as well-informed, ethical, and dependable members of society.
5. Continually increase their knowledge and experience throughout their career.

Program Outcomes

The outcomes that we strive for our students to possess:

1. An ability to apply knowledge of mathematics, science, and engineering.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health, and safety, manufacturability, and sustainability.
4. An ability to function on multi-disciplinary teams.
5. An ability to identify, formulate, and solve engineering problems.

6. An understanding of professional and ethical responsibility.
7. An ability to communicate effectively.
8. An ability to apply their broad education toward the understanding of the impact of engineering solutions in a global, economic, environmental, and societal context.
9. A recognition of the need for, and the ability to engage in lifelong learning.
10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Industrial Engineering Course of Study

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- ER Engineering Requirement

Freshman Year Credit Hours

Fall Semester

ENGL 132*	English Composition I (GUR/ER/MR)	3
ENGR 102*	First Year Engineering Seminar (GUR/ER/MR)	1
ENGR 103*	Introduction to Engineering (GUR/ER/MR)	4
MATH 133*	Calculus I (GUR/ER/MR)	4
PHYS 133*	Mechanics (GUR/ER/MR)	4
PEHR 151	Personal Health and Wellness (GUR)	1
		17

Spring Semester

ENGL 133**	English Composition II (GUR/ER/MR)	3
ENGR 105*	Computer Programming for Engineers (GUR/ER/MR)	3
ENGR 110*	Data Acquisition and Processing (GUR/ER/MR)	2
MATH 134* **	Calculus II (GUR/ER/MR)	4
PHYS 134* **	Electricity and Magnetism (GUR/ER/MR)	4
PEHR 153-199	Lifetime Activities Series (GUR)	1
		17

Sophomore Year		Credit Hours	Senior Year		Credit Hours
<i>Fall Semester</i>			<i>Fall Semester</i>		
CHEM 105*	General Chemistry I (ER/ MR)	4	IE 429	Design and Analysis of Experiments (MR)	3
ME 204* **	Engineering Mechanics I (ER/MR)	3	IE 428**	IE Design Laboratory III (MR)	2
EE 205 * **	Electrical Engineering I (ER/MR)	4	IE 439* **	Senior Design Projects I (MR)	3
MATH 236* **	Differential Equations (ER/ MR)	3	IE 422*	Industrial Safety and Hygiene	3
SBP xxx	Social/Behavioral Perspective (GUR/ER/MR) ¹	3		Technical or Design Elective ² (MR)	3
		<hr/>	ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
		17			<hr/>
<i>Spring Semester</i>			<i>Spring Semester</i>		
AC 201*	Financial Reporting (MR)	3	IE 420**	Operations Research (MR)	3
IE 212* **	Probability and Statistics (ER/MR)	3	IE 440**	Senior Design Projects II (MR)	3
MATH 235* **	Calculus III (ER/MR)	3		Technical Elective ² (MR)	3
	Basic Science Elective (MR)	3		Design Elective ² (MR)	3
PH xxx	Ethical Perspective (GUR/ER/MR) ¹	3		General Elective ³ (MR)	3
LBC xxx	Learning Beyond the Classroom (GUR)	3	LBC xxx	Learning Beyond the Classroom (GUR)	
		<hr/>			<hr/>
		15			15
Junior Year		Credit Hours			
<i>Fall Semester</i>			<i>1 General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied. (See p. 37.)</i>		
IE 308* **	Work Analysis and Design (MR)	3	<i>2 Technical or design electives are engineering, math, or science courses normally numbered 300 or above or courses approved by the department chair.</i>		
IE 312* **	Engineering Economic Analysis (MR)	3	<i>3 General Elective. Selected on approval of the academic advisor.</i>		
IE 318* **	Industrial Design Lab I (MR)	2	Total credit hours required for graduation –132.		
IE 326* **	Production Planning and Control (MR)	3	The 2.0 required minimum grade point average in the major is based upon all IE courses pursued as a part of the student's degree program. In addition, a minimum grade of C is required in all IE design projects.		
ME 309* **	Materials Science (MR)	3			
CUL xxx	Cultural Perspective (GUR/ER/MR) ¹	3			
		<hr/>			
		17			
<i>Spring Semester</i>			Five-Year Bachelor/MSEM Program		
ME 322**	Manufacturing Processes (MR)	3	This program allows undergraduate Industrial Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Industrial Engineering (BSIE) and to earn the master's degree in Engineering Management (MSEM) with just one additional year of study.		
IE 315* **	Quality Control and Engineering Statistics (MR)	3			
IE 328* **	Industrial Design Lab II (MR)	2			
IE 334**	Computer Simulation and Design (MR)	3			
	Technical or Design Elective (MR) ²	3			
HIST xxx	Historical Perspective (GUR/ER/MR) ¹	3			
		<hr/>			
		17			

Five-Year Bachelor/MBA Program

This program allows undergraduate Industrial Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Industrial Engineering (BSIE) and to earn the master's degree in Business Administration (MBA) with just one additional year of study.

INFORMATION TECHNOLOGY MAJOR

College of Arts and Sciences

General Information

The Information Technology major, which leads to a Bachelor of Science degree, prepares students to be able to identify and employ the information technology and methodologies required to help an organization meet its goals. Students are prepared to understand and meet the technology needs of users in an organization while being able to select, apply, integrate and administer computing technologies within the organization. Students are prepared to advocate for the users as well as to administer computer systems, manage networks of computers, design and develop web pages, and develop network and system security strategies for an organization. Due to the rapid rate of change in technology, students are equipped to understand and manage the information technology resources of an organization in an environment of change as new technologies emerge. Students will gain hands-on experience with a range of information technologies and an internship is required to provide students with an understanding of how information technology is used in the real world.

Opportunities

Graduates in information technology develop the knowledge and understanding required of IT professionals and are prepared to go on to advanced study or to enter various information technology fields. Graduates are in high demand and are well equipped to enter careers in system administration, web design and development, network administration, and network security

Faculty

Professors: Lisa Hansen, Leh-Sheng Tang

Associate Professors: Heidi Ellis, Herman Lee Jackson II

Professional Educator: John Willemain

Program Objectives

The information technology curriculum is designed in content and methods to enable the student to meet the following standards:

- To learn concepts of information technology:
 - Become independent learners, capable of solving system and network administration problems
 - Have the foundation and framework for learning new concepts.
- To develop technical skills:
 - Analyze complex network systems problems
 - Understand network security issues
- To design systems:
 - Discover and analyze requirements for a network system
 - Discover and analyze requirements for building a secure network environment
- To develop skills:
 - In communications and networks theories and implementations
 - In web design and development
 - In database management systems
- To gain experience:
 - In communication in both technical and nontechnical areas
 - In analysis and design of network systems
 - In collaborative team work

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements p. 42.

Course of Study

- Required information technology courses (23 credit hours)
 - IT 101 Introduction to Computing
 - IT 102 Introduction to Programming
 - IT 230 Introduction to Operating

- Systems and Script Development
- IT 240/BIS 210 Foundations of Web Systems
- IT 250/BIS 413 Data Communications and Networks
- IT 300/BIS 321 Database Management Systems
- IT 320 Foundations of Human Computer Interaction

- Required mathematics courses (6 Additional credit hours)
 - MATH 120 Introductory Statistics for Arts and Sciences
 - MATH 150 Applied Discrete Mathematics
- Science courses (six credit hours)
- Technical Elective (six credit hours). Two additional information technology or computer science courses numbered 300 or above.

Internship (three credit hours) In addition to the above required courses, students must complete two concentration areas taking two courses for each of their chosen concentrations and an additional course in a third concentration area. The current concentration areas are:

Area 1 - System Administration:

- IT 310 System Operation and Administration
- IT 410 Advanced Topics in System Administration

Area 2 - Network Security:

- IT 330 Network Security Concepts
- IT 430 Advanced Topics in Network Security

Area 3 - Wireless Network:

- IT 340 Wireless Networking Concepts
- IT 440 Advanced Topics in Wireless Networking

Area 4 - Web Design and Development:

- IT 350 Web Systems Development
- IT 450 Advanced Topics in Web Design and Development

Area 5 - Network Administration:

- IT 360 Network Management and Operations
- IT 460 Advanced Topics in Network Administration

Suggested Sequence of Courses

Notes:

- * Is a prerequisite
- ** Has a prerequisite

MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year **Credit Hours**

<i>Fall Semester</i>		
IT 101	Introduction To Computing (MR)	4
GEN xxx	General Elective	3
ENGL 132*	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
HIST xxx	Historical Perspective (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 16

<i>Spring Semester</i>		
IT 102	Introduction to Programming (MR)	4
MATH 150	Applied Discrete Mathematics(MR)	3
ENGL 133**	English Composition II (GUR)	3
GEN xxx	General Electives	6
PEHR 153-159	Lifetime Activities Series	1
		<hr/> 17

Sophomore Year **Credit Hours**

<i>Fall Semester</i>		
IT 230* **	Introduction to Operating Systems and Script Development (MR)	3
MATH 120*	Introductory Statistics for A&S (MR/GUR)	3
WIC 2xx	Writing Intensive course (A&SR)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
SBP xxx	Social/Behavioral Science Perspective (A&SR)	3
		<hr/> 15

<i>Spring Semester</i>		
IT 240* **	Foundations of Web Systems (MR)	3
IT 250* **	Data Communications and Networks (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
GEN xxx	General Elective	3
		<hr/> 15

Junior Year **Credit Hours**

<i>Fall Semester</i>		
IT 3xx**	IT Concentration area 1 (MR)	3
IT 3xx**	IT Concentration area 2 (MR)	3
CUL xxx	Cultural Studies Perspective (GUR)	3
IT 300**	Database Systems (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/> 15

<i>Spring Semester</i>		
IT 4xx**	IT Concentration area 1 (MR)	3
IT 4xx**	IT Concentration area 2 (MR)	3
PH xxx	Ethical Perspective (GUR)	3
GEN xxx	General Electives	3
WIC 3xx	Writing Intensive course (A&SR)	3
		<hr/> 15

Senior Year **Credit Hours**

<i>Fall Semester</i>		
IT 320	Foundations of Human Computer Interaction (MR)	3
IT/CS 3xx/4xx	IT Electives	3
GEN xxx	General Electives	9
		<hr/> 15

<i>Spring Semester</i>		
IT xxx**	IT Concentration area 3 (MR)	3
IT/CS 3xx/4xx	IT Electives	3
IT 480	Internship (MR)	3
GEN xxx	General Electives	5
		<hr/> 14

Note: Initially, the IT program will be offering only four areas of concentration.

INTEGRATED LIBERAL STUDIES MAJOR

College of Arts and Sciences

General Information

The Integrated Liberal Studies program provides the opportunity to construct an individualized major. Such a program combines a selection of interrelated courses from two or more disciplines according to the interests and goals of the student.

Students must request permission and guidance from each department in which they propose to do a substantial part of the work. Final approval of such a program rests with the Dean of the College of Arts and Sciences upon recommendation of those departments concerned. No request for an Integrated Liberal Studies major will be considered earlier than the end of the freshman year or later than the beginning of the senior year.

Career Opportunities

This program permits students to pursue goals, which are not addressed in a regular major program. Past majors have found jobs in animal science, publishing, and pharmaceutical sales.

Faculty

Faculty in this major are drawn from disciplines throughout the University.

Program Objectives

1. To allow students to construct a major.
2. To gather courses from at least two major departments.
3. To lead students to define educational goals.
4. To bring the students into planning their own education.
5. To lead students to find elements in disciplines that reinforce each other.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Non-Business majors can apply no more than 25% of business coursework to their graduation requirements.

Course of Study

Minimum requirements for an integrated liberal studies major:

A minimum of 36 credit hours drawn from at least two disciplines, 18 hours in each discipline. At least 30 (15 hours in each) of these shall be courses at the 300-400 level.

Suggested Sequence of Courses

The assistant dean of Arts and Sciences serves as the advisor to students in this major. Each student's four-year sequence is dependent upon the courses of study selected.

INTEGRATED PROFESSIONAL SCIENCE STUDIES

College of Arts and Sciences

General Information

As our World continues to become more complex and more dependent on science and technology, there is an increasing demand for individuals who can combine a basic understanding of science with a basic understanding of business or information technology. The Integrated Professional Science Studies major is designed to meet this growing need for people whose knowledge of science is directed to its use and administration. This new degree is designed to combine two years of biology, chemistry, forensic biology, forensic chemistry or pre-pharmacy study with a concentration in business, management, marketing, informatics, mathematics, or public relations. The proficiency will be demonstrated by achieving at least one minor in a science and a minor in the chosen concentration. The students will enter into this major prior to the Junior year.

Career Opportunities:

Modern research and development in the health and life sciences demands a larger use of computer science and mathematics skills than is typically taught to the traditional majors in the life or health sciences. The concentration in Informatics is addressing this shortfall by educating the student to be able to use modern informatics tools in research and development in the sciences. The mining for specific patterns and information and use of the massive data bases that now exist in the genome projects, protein structure and molecular analysis data bases are examples of this work. The extraction of information from these data bases and virtual laboratories is a growing occupation in many fields. The graduates are ideally prepared to work on any data intensive R&D project.

Similar objectives and outlooks are also relevant for the concentration in mathematics. However, these graduates are better situated to model the data with more traditional mathematical tools. They will be helping to develop the life sciences into a more quantitative direction. Graduates of this mathematical concentration are bridging the gap that still exists between

the more traditionally trained life scientist and the quantitative or mathematical modeling world.

The concentrations in business, management or marketing add the required people, management and leadership skills, so that the graduates will be ideal candidates for employment in the many health and life science businesses. They understand and are conversant in the foundations of the relevant sciences on the one hand but are also highly knowledgeable in traditional business ideas on the other. They are thus the bridge between the scientific side of the business and the managerial, marketing or general business side. They will find work in the many health care businesses, or as managers in the development of new health care related products. They will be superbly placed in the field of marketing of healthcare products also.

The communication of or about the results and products of the sciences to the general public is the focus of another concentration. Public relations officer of any kind of science related business, writing in and about science as editor or contributor of scientific books, magazines, and newsletters are just a few of the possible work places of obvious choice for our graduates. Especially life and health sciences in this era of biotechnology and green revolution are a rapidly growing and will create a high demand on students with these skills.

As is the case in many other majors to continue the study to achieve a master's degree or Ph.D. in Professional Science is another possible choice for the graduate. Other forms of advancement like study of the law to be an environmental, or patent lawyer are possible options.

Faculty:

Faculty from the College of Arts and Sciences and the College of Business will be the instructors for the various courses.

Program Objectives:

1. To enable the student to synthesize the knowledge and approach from two very different fields of study, one of which is in the sciences.

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2. To guide the student to be a critical thinker, able to build on the outcomes of science and supplement it with the strength from the concentration.
3. To provide a solid foundation and understanding in the sciences especially in the biochemical, life and Health science disciplines.
4. To understand the basics of biochemistry, cells, evolution
5. To have a foundation in the atomic and molecular structure and reactions that are relevant in chemistry or the life sciences
6. To be able to problem solve
7. To be able to read or write technical communications
8. To understand the fundamental concepts of computer science and Informatics and how to apply them to problems arising in bio / chemical research or development
9. To have managerial, marketing and general business tools and understanding

General University and College Requirements:

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study:

1. Required Science and Mathematics courses (34 credit hours):
BIO 107/108 General Biology I&II
BIO 117/118 General Biology Lab I&II
CHEM 105/106 General Chemistry I&II
CHEM 209/210 Organic Chemistry I&II
CHEM 219/220 Organic Chemistry Lab I&II
MATH 123 or 133 Calculus I
MATH 120 or 134 Introductory Statistics or Calculus II
PHYS 123 or 133 Physics of Life Science I or Mechanics
And three courses of the following for a minimum of 9 credits:
BIO 201 Plant Biology BI0203
Microbiology BI0213 Ecology
BIO 215/216 Anatomy and Physiology I&II
CHEM 211 Analytical Methods
CHEM 221 Analytical Methods Lab
CHEM 314 Biochemistry

CHEM 324 Biochemistry Lab
MATH 124 or 134 Calculus II
MATH 235 Calculus III
PHYS 124 or 134 Physics of Life Science II or Electricity and Magnetism
And achieving at least one minor in either Biology, Biochemistry, Chemistry or Forensic Science

2. The following courses are required for the non science concentration:

Concentration in Informatics

- (A) Informatics (22 credit hours):
- | | |
|---------|-----------------------------------|
| CS 101 | Introduction to Computing |
| CS 102 | Introduction to Programming |
| CS 190 | Informatics |
| CS 201 | Data Structures and Algorithms I |
| CS 202 | Data Structures and Algorithms II |
| IT 300 | Database Management Systems |
| BIO 290 | Bioinformatics |

Concentration in Business

- (B) Business (21 credit hours):
- | | |
|---------|--|
| AC 201 | Financial Reporting |
| AC 202 | Managerial Accounting |
| BIS 202 | Introduction to Business Information Systems |
| FIN 214 | Introduction to Finance |
| MAN 101 | Principles of Management |
| MK 200 | Principles of Marketing |
| BUS 390 | Business of Health Services |

Concentration in Management

- (C) Management (18 credit hours):
- | | |
|---------|-----------------------------|
| MAN 101 | Principles of Management |
| MAN 204 | Organizational Behavior |
| MAN 323 | Human Resources Management |
| MAN 3xx | Management elective |
| BL 308 | Labor Management Relations |
| BUS 390 | Business of Health Services |

Concentration in Marketing

- (D) Marketing (18 credit hours):
- | | |
|---------|-----------------------------|
| MK 200 | Principles of Marketing |
| MK 301 | Buyer Behavior |
| MK 317 | Promotional Strategies |
| MK 322 | Sales and Sales Management |
| MK 390 | Health Care Marketing |
| BUS 390 | Business of Health Services |

Concentration in Public Relations

- (E) Public Relations (21 credit hours)
- | | |
|----------|----------------------------------|
| COMM 100 | Principles of Communication |
| COMM 102 | Public Speaking |
| COMM 205 | Mass Communication |
| COMM 280 | Organizational Communication |
| COMM 285 | Introduction to Public Relations |
| COMM 315 | Language in Communications |
| COMM 340 | Business Communications |

Concentration in Mathematics

- (F) Mathematics (19 credit hours)
- | | |
|----------|-------------------------------|
| MATH 134 | Calculus II |
| MATH 235 | Calculus III |
| MATH 276 | Advanced Calculus |
| MATH 281 | Foundations of Mathematics I |
| MATH 282 | Foundations of Mathematics II |
| MATH 306 | Linear Algebra |
- And achieving at least a minor in the respective concentration.

INTERNATIONAL STUDIES MAJOR

College of Arts and Sciences

General Information

The flexibility of the international studies major allows each student to select one of three options: European area concentration, developing societies concentration, or economics and commerce concentration. The interdisciplinary major program in international studies provides students with the tools necessary to analyze the increasingly complex interrelationships that characterize global society.

Career Opportunities

In the increasingly globalized environment of transnational corporate enterprise, employment and career opportunities are more likely than ever to be international in scope and character requiring employees who have acquired a familiarity with other cultures as well as their own. Employers actively seek individuals who can demonstrate a breadth of preparation that suggests flexibility and adaptability to a rapidly changing global marketplace.

Faculty

Professors: John Seung-Ho Baick, Emmett C. Barcalow, Arthur Schiller Casimir, Marc Dawson, Glen Ebisch, Martha Garabedian, Jean-Marie Higiro, Burton Porter, Donald Williams, Vladimir Wozniuk

Associate Professors: Meri Clark, Catherine Plum

Instructor: Frances Abrams

Program Objectives

1. To provide students with analytical tools necessary to understand and explain the increasingly complex interrelationships that characterizes global society.
2. To provide substantive knowledge by exposure to one of three tracks or options through advanced course study with a focus on either the European area, developing societies, or international economics and commerce.

- To afford exposure to foreign cultures.
- To underscore the importance of negotiation skills through participation in the Model U.N. program.
- To stress critical reading skills.
- To emphasize the construction and writing of coherent, logical arguments.
- To acquire basic proficiency in a language other than one's own.
- The capstone senior seminar in international studies is three credit hours.
- Eighteen additional credit hours in Social Sciences.
- Additionally, either the successful completion of foreign language study through one course beyond the intermediate level or a demonstration of comparable proficiency.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

- Seven core courses (24 credit hours):

INST 101/	
POSC 101	Introduction to Contemporary Global Issues
GEOG 101	World Geography
HIST 106	World Civilization II
POSC 203	International Relations
SO 310	Cultural Anthropology in the 21st Century
INST 490	Seminar in International Studies

Plus one of the following:

COMM 205	Mass Communication
COMM 206	Introduction to Research in Communication
ENGL 215	World Literature II

Plus one of the following:

PH 218	Contemporary Moral Problems
PH 320	Western Religions
PH 321	Eastern Religions
- An additional 18 credit hours drawn from the international studies curriculum list in economics, English, finance, political science, history, management, marketing, and sociology. By the junior year, students must choose one of three concentration options available within the international studies program: the Economics and Commerce Concentration, the Developing Societies Concentration, or the European Area Concentration. The precise program is designed in close consultation with the advisor.

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year

		Credit Hours
<i>Fall Semester</i>		
INST 101*	Introduction to Contemporary Global Issues (MR)	3
MATH 1xx*	Mathematical Analysis (GUR)	3
ENGL 132*	English Composition I (GUR)	3
LANG xxx	First Semester Foreign Language (MR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151*	Personal Health and Wellness(GUR)	1
		<hr/> 15

Spring Semester

HIST 106	World Civilization II (GUR/MR)	3
SO 310	Cultural Anthropology in the 21st Century (MR)	3
ENGL 133**	English Composition II (GUR)	3
MATH 1xx**	Mathematical Analysis(GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
LANG xxx	Second Semester Foreign Language	3
		<hr/> 16

Sophomore Year

		Credit Hours
<i>Fall Semester</i>		
COMM 205	Mass Communication (MR)	— or —

COMM 206	Introduction to Research in Communication (MR)	3
EC 111*	Principles of Economics I (MR)	3
LANG xxx	Third Semester Foreign Language (MR)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
GEOG 101	World Geography (MR)	3
		<hr/> 15

Spring Semester

GEN xxx	General Elective	3
LANG xxx	Fourth Semester Foreign Language (MR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
EC 112**	Principles of Economics II (MR)	3
POSC 203**	International Relations (MR)	3
		<hr/> 15

Junior Year

Credit Hours

Fall Semester

European Area Concentration

ENGL 215**	World Literature II (MR)	3
EC 315**	Comparative Economic Systems (MR)	3
LANG xxx	Fifth Semester Foreign Language (MR)	3
CUL 2xx	Cultural Studies Perspective (GUR)	3
CS xxx	Computing Competence Requirement (GUR)	3
		<hr/> 15

Developing Societies Concentration

ENGL 253	Spanish American Literature in English Translation (MR)	3
EC 321	Economic Development (MR)	3
LANG xxx	Fifth Semester Foreign Language (MR)	3
CUL 2xx	Cultural Studies Perspective (GUR)	3
CS xxx	Computing Competence Requirement (GUR)	3
		<hr/> 15

Economics and Commerce Concentration

EC 371	International Monetary Economics (MR)	3
GEN xxx	General Elective	3
PH 211	Business Ethics (GUR)	3

LANG xxx	Fifth Semester Foreign Language (MR)	3
CUL 2xx	Cultural Studies Perspective (GUR)	3
		<hr/> 15

Spring Semester

	Study Abroad/General Electives	15-17
CS xxx	Computer Competence Requirement (GUR)	3

Senior Year

Fall Semester

European Area Concentration

INST 480	Internship (MR)	3
HIST 320	The Twentieth Century World (MR)	3
POSC 316	Politics of Europe (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives	3
PH 320	Western Religions	3
		<hr/> 15

Developing Societies Concentration

INST 480	Internship (MR)	3
HIST 261	Africa in the Twentieth Century	3
POSC 310	Politics of Developing Societies (MR)	3
PH 320/321	Western or Eastern Religions	3
GEN xxx	General Elective	3
		<hr/> 15

Economics and Commerce Concentration

INST 480	Internship in International Studies (MR)	3
HIST 341	History of Modern Germany: 1848 to Present (MR)	3
POSC 340	International Law and Organization (MR)	3
EC 321	Economic Development (MR)	3
PH 218	Contemporary Moral Problems	3
		<hr/> 15

Spring Semester

INST 490	Seminar in International Studies (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective	3
POSC 3xx	Political Science Elective	3
ARTS xxx	Aesthetic Perspective (GUR)	3

EC 372 International Trade (MR) 3

15

*Two courses must be designated as writing intensive courses.

LAW AND SOCIETY MAJOR

College of Arts and Sciences

General Information

The Law and Society major is a course of study for the liberal arts student who is interested in studying the origins, institutional frameworks, cultural development, and theoretical foundations of law and justice. The study of law has a rich humanistic tradition that draws from the insights and tools of academic disciplines like history, political science, economics, and related social sciences to illuminate the development and practice of law and jurisprudence through a variety of legal traditions. The strongest emphasis in our program is on the jurisprudence of the Roman Empire, the Civil Law of Europe, the common law tradition of England and America, but other legal traditions will also be included, as well as consideration of the international arena and forces of globalization.

This is an interdisciplinary major, so students in this program are not confined to learning about law through the narrow prism of one particular discipline. The goal of the program is to allow students the freedom to sample from a wide variety of courses and instructors and to pursue specific interests within a broad organizing framework — the law.

Career Opportunities

The goal of the program is to produce students who can think clearly and analyze arguments critically. The multidisciplinary approach exposes students to a great variety of human behaviors and institutions. The law and society major was not designed to be the only path for preparing students for law school, nor does it provide significant paralegal training, but many students who plan to attend law school may benefit from this major as a field of study. The broadly based education offered by this major is an excellent preparation for careers in law, education, government, business, and international affairs.

Faculty

Professors: William Mandel, Donald Williams, Vladimir Wozniuk

Associate Professor: Jonathan Beagle

Program Objectives

1. Understand the nature of Roman jurisprudence as a foundation for the Roman Law of Europe and development of the common law tradition from England to America.
2. Develop an appreciation for non-Western legal traditions from the Middle East, Sub-Saharan Africa, South Asia, and East Asia.
3. Understand the comparative development and practice of constitutional law in the United States and other societies.
4. Perceive the dynamic relationship between law and society as a developing continuum in national and international government.

Understand the dynamics of legal institutions and practices in the United States and elsewhere in an increasingly globalizing world.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

1. Required law and society courses (21 credit hours)

LSOC 101	Introduction to Law and Society
LSOC 201	The History and Theory of the Common Law
POSC 102	American National Government
POSC 201	Comparative Politics
POSC 207	Western Political Thought
POSC 325	Constitutional Law
POSC 326	Civil Liberties
POSC 344	Comparative Legal Systems
SO 413	Social Inequality and Justice
2. The major will require that the student select five courses (18 credits) from the following:

CJ 240	Criminal Law and Procedure
CJ 234	Judicial Process
CJ 342	Juvenile Justice
CUL 251	Justice Then and Now
EC 105	Economics of Crime
ENGL 366	Crime and Punishment
HIST 336	Early American Republic

BL 201	Legal Aspects of Business
LSOC 304	The Law of Greece and Rome
LSOC 202	The Literature of the Law
POSC 340	International Law
SO 214	Drugs, Society and the Criminal Justice System
SO 309	Deviance and Social Control
SW 204	Social Work and Criminal Justice

3. The student would also be required to take courses outside the major as follows:

EC 111	Principles of Economics
HIST 105	World Civilization I
HIST 106	World Civilization II
POSC 102	American National Government
PSY 101	Introduction to Psychology
SO 101	Introduction to Sociology

Suggested Sequence of Courses

Notes

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year

Fall Semester

		Credit Hours
LSOC 101	Introduction to Law and Society (MR)	3
SO 101*	Introduction to Sociology — or —	
PSY 101	Introduction to Psychology(MR)	3
ENGL 132*	English Composition I (GUR)	3
MATH 1xx	Mathematical Analysis (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		15

Spring Semester

POSC 201*	History and Theory of the Common Law — or —	
PSY 101	Introduction to Psychology (MR)	3
LSOC 201	The History and Theory of the Common Law (MR)	3
ENGL 133*	English Composition II (GUR)	3

LIBERAL STUDIES MAJOR

College of Arts and Sciences

General Information

The liberal studies programs are open only to part-time students (no more than 11 credits per semester).

Program Objectives

1. To provide a wide array of courses.
2. To present a well balanced program of courses.
3. To frame (for the associate's degree) a realistic, near-term goal.
4. To allow students to make maximum use of courses taken.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Non-business majors can apply no more than 25% of business coursework to their graduation requirements.

Associate of Arts in Liberal Studies

The Associate of Arts in Liberal Studies is particularly appropriate for nontraditional students who are entering or reentering college after a long pause in their formal education. The two-year degree may be designed by the student, with the assistance of an academic advisor, to serve as a career development tool as well as preparation for upper-level study in a four-year degree program.

Course of Study (60 credit hours)

Freshman English	6 credit hours
Humanities	12 credit hours
LAB xxx Natural Science Perspective	3 credit hours
Mathematics	3 credit hours
Mathematics or Computer	3 credit hours
Social Sciences	12 credit hours
General Electives	1 credit hours

Bachelor of Arts in Liberal Studies

The Bachelor of Arts in Liberal Studies satisfies the broad interests of older students who wish to further their formal education without reference to specific career preparation or as preparation for graduate study. Advisors can give more information and guidance on this flexible degree option.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Non-business majors can apply no more than 25% of business coursework to their graduation requirements.

Candidates for the Bachelor of Arts in Liberal Studies must meet all general requirements of the University and area requirements of the College of Arts and Sciences.

Course of Study (120 credit hours)

Computer	3 credit hours
Freshman English	6 credit hours
Humanities	30 credit hours
	(9 credit hours at 300-400 level)
LAB xxx	
Natural Science Perspective	3 credit hours
LAB/NSP xxx	
Natural Science Perspective	3 credit hours
Mathematics	6 credit hours
Social Sciences	30 credit hours
	(9 credit hours at 300-400 level)
General Electives	39 hours
	(12 credit hours at 300-400 level)

Total credit hours required for graduation—120.

MANAGEMENT MAJOR

College of Business

General Information

The Management program provides students with the knowledge, competencies, and characteristics that enable them to become difference makers—providing leadership in meeting organizational objectives and challenges. Students undertake a wide range of academic and experiential learning opportunities to develop the proactive, critical, and creative thinking skills needed for effective problem-solving and communication, commitment to excellence, and personal integrity that enable them to provide effective leadership in work and community settings.

Career Preparation

In order to help students understand careers available to Management majors, faculty in the Management department designed activities to guide students from career exploration through career implementation. Examples of some of these include:

- a) Career Exploration in the freshmen year is accomplished in MAN 101 through guest speakers from local businesses
- b) Career Investigation in the sophomore year courses includes personality assessment linked to career choices in MAN 201
- c) Career Determination in the junior year engages students in resume review and mock interviews in MAN 323
- d) Career Implementation in the senior year includes participation in the “RealTest” Assessment Exercise. This is a daylong event during which students demonstrate their management abilities and are coached by local business people and alumni volunteers.

Career Opportunities

Management majors are prepared to embark on a career path with the promise of increasing responsibility in a rapidly changing global environment.

Graduates work in a wide range of organizations and positions that include: manufacturing, corporate business, financial

services, small business, hospitality industry, government, and public administration. Many enroll in graduate programs or law school. Our focus is on preparation for career-entry and our successful graduates typically enter businesses and organizations in entry-level professional positions.

Faculty

Professors: William Ferris, Julie Siciliano

Associate Professors: Lynn Bowes-Sperry, Jeanie Forray

Assistant Professors: Lynn Bakstran, Melissa Knott

Professional Educator: John Greeley

Program Learning Goals

Having completed a major in Management, the student will have the ability to:

1. Understand and synthesize the basic concepts and theories of management and human resource management that serve as a basis for high performance.
2. Apply theories and concepts of management and human resource management to develop strategies for improving the performance of people and processes in organizations.
3. Perform well on teams, provide leadership, contribute and collaborate to achieve team goals.
4. Demonstrate skill and competency in developmental performance feedback.
5. Apply theories and concepts of management and human resource management to develop strategies for dealing with organizational and interpersonal conflict.

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (83 credit hours) See p. 42
— plus —
2. Required Management and Business Law courses (18 credit hours)
BL 308 Labor/Management
 Relations (3 cr.)

BL 424	Legal Aspects of Human Resource Management (3 cr.)	HIST xxx	Historical Perspective (GUR)	3
MAN 201	Interpersonal Skills for Managing (3 cr.)	MAN 101	Management and Organizational Behavior (BUSR)	
MAN 323	Human Resource Management (3 cr.)	— or —		
MAN 370	Project Management (3 cr.)	BIS 102	Problem Solving with Business Tools (BUSR)	3
MAN 433	Leading Teams (3 cr.)	PEHR 151	Personal Health and Wellness (GUR)	1
	—plus —			
3. Electives (21 credit hours)				
MAN 480	Management Internship			
	— or —			
BUS xxx	Business Elective (3 cr.)			
MAN 3xx/4xx	Management Elective (3 cr.)			
NBEL xxx	Non-Business Electives (15 cr.)			
Total credit hours required for graduation – 122.				
Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year				
Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.				
Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)				
Courses to be included in computing the 2.0 minimum average in the major are as follows: All MAN and BL courses as well as BUS 450.				
				16

<i>Spring Semester</i>				
ENGL 133*	English Composition II(GUR)			3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)			
	— or —			
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)			3
COMM 100	Principles of Communication (BUSR)			3
MAN 101	Management and Organizational Behavior (BUSR)			
	— or —			
BIS 102	Problem Solving with Business Tools (BUSR)			3
PSY 101	Introduction to Psychology (BUSR)			
	— or —			
SO 101	Introduction to Sociology (BUSR)			3
PEHR 153-159	Lifetime Activity Series (GUR)			1
				16

Suggested Sequence of Courses

Notes:

MR	Major Requirement
GUR	General University Requirement
BUSR	College of Business Requirement

Freshman Year

		Credit Hours
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132*	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	
	— or —	
MATH 123	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3

Sophomore Year

		Credit Hours
<i>Fall Semester</i>		
AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
BL 201	Introduction to Business Law (BUSR)	3
		15
<i>Spring Semester</i>		
AC 202	Managerial Accounting (BUSR)	3

MARKETING MAJOR

College of Business

General Information

Marketing is a dynamic force in today's multinational economy. Given the highly competitive nature of business, it is essential that business organizations understand and respond to the wants and needs of multiple markets. In order to manage markets successfully, Marketing managers must employ a combination of good business judgment, effective analytical techniques, and professional communication skills. The marketing program strives to provide students with abilities in each of these areas.

Students in the Marketing major learn how to develop their marketing skills to become efficient marketing managers. Course projects are designed to provide students with exposure to real world marketing management problems. Students often work in group projects where they meet with business clients, gather marketing information, and develop real-time marketing solutions.

Career Preparation

In order to help students understand careers available to Marketing majors, faculty in the Department of Marketing design activities to guide students from career exploration through career implementation. Examples of some of these include:

- a) Career Exploration in the freshman year is accomplished in First Year Seminar where students are introduced to marketing career opportunities.
- b) Career Investigation in the sophomore year courses includes classroom assignments in MK 200 which could include visiting a Human Resource office or shadowing a marketing professional.
- c) Career Determination in the junior year is accomplished using an assignment in MK 301 which is designed to help students become more knowledgeable about career options and to assist students with selecting an appropriate career path.
- d) Career Implementation in the senior year includes résumé writing and review of job descriptions and responsibilities in MK 421.

Career Opportunities

Students majoring in marketing often pursue careers in marketing management, marketing research, sport marketing, sales and sales management, consumer management, and product/brand management.

Faculty

Professors: Paul Costanzo, Elizabeth Elam, Harlan Spotts

Associate Professor: Janelle Goodnight

Professional Educator: James McKeon

Program Learning Goals

Having completed a major in Marketing, the student will have the ability to:

1. Understand the interactions required for the effective design and execution of strategic and marketing plans.
2. Apply marketing theories and concepts to the analysis and design of solutions for marketing-related business challenges.
3. Demonstrate skills in quantitative and qualitative research techniques as they apply to marketing problems.
4. Produce effective marketing plans, research reports, and oral presentations.

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (83 credit hours) See p. 42
—plus—
2. Required Marketing courses (18 credit hours)
MK 301 Buyer Behavior
MK 318 Marketing Research
Any two of the following three courses:
MK 317 Promotional Strategy
MK 320 Price and Product Strategy
MK 323 Distribution Strategy
— and —
MK 421 Marketing Management
MK 440 Marketing Seminar
— plus —
3. Other required courses (3 credit hours)
COMM 340 Business Communication
—plus—

4. Electives (18 credit hours)
 MK 3xx/4xx (3 cr.)
 MK 480 (3 cr.) Marketing Internship
 — or —
 Business Elective (3 cr.)
 Non-Business Electives (12 cr.)

Total credit hours required for graduation—122.

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in the sophomore year.

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are all MK courses and BUS 450.

Suggested Sequence of Courses

- Notes:
 MR Major Requirement
 GUR General University Requirement
 BUSR College of Business Requirement

Freshman Year		Credit Hours
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR) — or —	
MATH 123	Calculus I for Management, Life, and Social Sciences (GUR/BUSR)	3
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management (and Organizational Behavior BUSR) — or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 16

<i>Spring Semester</i>		
ENGL 133	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR) — or —	
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
COMM 100	Principles of Communication	3
MAN 101	Management and Organizational Behavior (BUSR) — or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PSY 101	Introduction to Psychology (BUSR) — or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/> 16

Sophomore Year		Credit Hours
<i>Fall Semester</i>		
AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3
BL 201	Introduction to Business Law (BUSR)	3
		<hr/> 15
<i>Spring Semester</i>		
AC 202	Managerial Accounting (BUSR)	3
BIS 220	Introduction to Business Statistics (BUSR)	3
FIN 214	Introduction to Finance (BUSR)	3
EC 112	Principles of Economics II (BUSR)	3
PH 211	Business Ethics — or —	
MAN 240	Business and Society (BUSR)	3
LBC 4xx	Learning Beyond the Classroom	
		<hr/> 15

Junior Year **Credit Hours***Fall Semester*

BUS 301	Managing the Established Enterprise (BUSR) — or —	3
BUS 312	Integrated Business Operations with SAP	
COMM 340	Business Communication (MR)	3
MK 301	Buyer Behavior (MR)	3
LAB xxx	Natural Science Perspective (GUR.)	3
NBEL xxx	Non-Business Elective (BUSR)	3
		<hr/> 15

Spring Semester

MK 317	Promotional Strategy (MR) — or —	
MK 320	Price and Product Strategy (MR) — or —	
MK 323	Distribution Strategy (MR)	3
CUL xxx	Cultural Perspective (GUR)	3
MK 318	Marketing Research (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective	3
		<hr/> 15

Senior Year **Credit Hours***Fall Semester*

MK 421	Marketing Management (MR)	3
MK 480	Marketing Internship (MR) — or —	
BUS xxx	Business Elective (MR)	3
BIS 310	Quality and Operations Management (BUSR) — or —	3
BIS 312	Quality and Operations Management with SAP	
LAB/NSP xxx	Natural Science Perspective (GUR)	3
NBEL xxx	Non-Business Elective (BUSR)	3
		<hr/> 15

Spring Semester

BUS 450	Business Strategy (BUSR)	3
MK 440	Marketing Seminar (MR)	3
MK 3xx/4xx	Marketing Elective (MR)	3
NBEL xxx	Non-business Elective (BUSR)	3
NBEL xxx	Non-business Elective (BUSR)	3
LBC 4xx	Learning Beyond the Classroom	
		<hr/> 15

MARKETING COMMUNICATION/ADVERTISING MAJOR**College of Business****General Information**

New technology has enabled marketers to communicate in more effective ways. Such vehicles of marketing communication include interactive marketing, relationship marketing, video information systems, and the application of new technology in advertising. A better understanding of the role of communication in the marketplace is vital in helping businesses obtain a competitive edge. The major in Marketing Communication/Advertising prepares students to enter the work force with an understanding of how promotional strategies can be effectively used in executing and enhancing marketing messages. The Marketing Communication/Advertising major studies how marketers utilize and implement communication/promotional concepts when delivering the marketing message.

One of the unique features of the Marketing Communication/Advertising program is that our students produce actual advertising and promotional outputs that are evaluated by external business professionals. Students study all facets of the promotional mix including but not limited to; advertising, public relations/publicity, direct marketing, personal selling, Internet/interactive and sales promotions.

Career Preparation

In order to help students understand careers available to Marketing Communication majors, faculty in the Department of Marketing design advertising activities to guide students from career exploration through career implementation. Examples of some of these include:

- Career Exploration in the freshman year is accomplished in First Year Seminar where students are introduced to marketing career opportunities.
- Career Investigation in the sophomore year courses includes classroom assignments in MK 200 which could include visiting a Human Resource office or shadowing a professional in the field of marketing communication/advertising

- c) Career Determination in the junior year is accomplished using an assignment in MK 301 which is designed to help students become more knowledgeable about career options and to assist students with selecting an appropriate career path.
- d) Career Implementation in the senior year includes a required internship and class assignments in MK 422.

- 2. Required Marketing courses (18 credit hours)
 - MK 301 Buyer Behavior
 - MK 317 Promotional Strategy
 - MK 340 Promotion Design and Applications
 - MK 422 Campaign Planning and Management
 - MK 440 Marketing Seminar
 - MK 485 Marketing Communication/Advertising Internship
 - plus—
- 3. Other required courses (9 credit hours)
 - COMM 340 Business Communication
 - COMM 348 Intercultural Communication
 - COMM 322 Media Planning and Public Relations
 - plus —

Career Opportunities

Students majoring in marketing communication/advertising often pursue careers in promotional management, marketing communication, direct marketing, public relations, and advertising account management.

Faculty

Professors: Paul Costanzo, Elizabeth Elam, Harlan Spotts

Associate Professor: Janelle Goodnight

Professional Educator: James McKeon

Program Learning Goals

Having completed a major in Marketing Communication/Advertising, the student will have the ability to:

- 1. Understand the interactions of communication and promotional strategies and tactics within the context of an organization and its various publics and markets.
- 2. Apply theories in marketing, sociology, and psychology to the analysis and design of solutions for promotional issues and challenges.
- 3. Demonstrate creative and analytical skills as they apply to marketing communication and promotional strategy.
- 4. Design and produce creative and appropriate promotional materials.

Course of Study

- 1. Core Requirements for All Business Majors and General University Requirements (83 credit hours) See p. 42
- plus—

- 4. Electives (12 credit hours)
 - MK 3xx/4xx (3 cr.)
 - Business Elective (3 cr.)
 - Non-Business Electives (6 cr.)

Total credit hours required for graduation—122.

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in the sophomore year.

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are as follows: All MK courses, COMM 340, COMM 348, COMM 322 and BUS 450.

Suggested Sequence of Courses

Notes:

- MR Major Requirement
- GUR General University Requirement
- BUSR College of Business Requirement

Freshman Year	Credit Hours
<i>Fall Semester</i>	
BUS 101	First Year Seminar (GUR/ BUSR) 3

ENGL 132	English Composition I (GUR)	3	BL 201	Introduction to Business Law (BUSR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	3			15
	— or —				
MATH 123	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3	<i>Spring Semester</i>		
HIST xxx	Historical Perspective (GUR)	3	AC 202	Managerial Accounting (BUSR)	3
MAN 101	Management and Organizational Behavior (BUSR)	3	BIS 220	Introduction to Business Statistics (BUSR)	3
	— or —		FIN 214	Introduction to Finance (BUSR)	3
BIS 102	Problem Solving with Business Tools (BUSR)	3	EC 112	Principles of Economics II (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1	PH 211	Business Ethics	
		16	MAN 240	Or Business and Society (BUSR)	3
			LBC 2xx	Learning Beyond the Classroom	
					15

Spring Semester

ENGL 133	English Composition II (GUR)	3	Junior Year	Credit Hours	
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	3	<i>Fall Semester</i>		
	— or —		BUS 301	Managing the Established Enterprise (BUSR)	3
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3		— or —	
COMM 100	Principles of Communication (BUSR)	3	BUS 312	Integrated Business Operations with SAP	
MAN 101	Management and Organizational Behavior (BUSR)	3	COMM 340	Business Communication (MR)	3
	— or —		MK 301	Buyer Behavior (MR)	3
BIS 102	Problem Solving with Business Tools (BUSR)	3	NBEL xxx	Non-business Elective (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	3	LAB xxx	Natural Science Perspective (GUR)	3
	— or —				15
SO 101	Introduction to Sociology (BUSR)	3	<i>Spring Semester</i>		
PEHR 153-159	Lifetime Activity Series (GUR)	1	MK 317	Promotional Strategy	3
		16	BUS xxx	Business Elective (MR)	3
			CUL xxx	Cultural Perspective (GUR)	3
			MK 3xx/4xx	Marketing Elective	3
			ILP xxx	Integrated Liberal and Professional Perspective	3
					15

Sophomore Year

Credit Hours

Fall Semester

AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3
BIS 202	Introduction to Business Information Systems (BUSR)	3
EC 111	Principles of Economics I (BUSR)	3

Senior Year

Credit Hours

Fall Semester

BIS 310	Quality and Operations Management (BUSR)	3
	— or —	
BIS 312	Quality and Operations Management with SAP	
MK 422	Campaign Planning and Management (MR)	3
MK 340	Promotion Design and Applications	3

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COMM 348	Intercultural Communication (MR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
		<hr/> 15

Spring Semester

BUS 450	Business Strategy (BUSR)	3
MK 440	Marketing Seminar (MR)	3
MK 485	Marketing Communication/ Advertising Internship	3
COMM 322	Media Planning and Public Relations (MR)	3
NBEL xxx	Non-business Elective (BUSR)	3
LBC 4xx	Learning Beyond the Classroom	3
		<hr/> 15

MATHEMATICAL SCIENCES MAJOR

College of Arts and Sciences

General Information

The primary goals of the Mathematical Sciences major are to offer general training in mathematical reasoning and to develop mastery of mathematical tools needed for a lifelong series of different jobs and continuing education. Much emphasis is placed on the theory of problem-solving and nurturing such abilities as intuition, inductive and deductive reasoning, and model building.

The student is also made aware of the power and elegance of mathematical truth through careful analysis of axiomatic systems and mathematical theories. Throughout the undergraduate program students are encouraged to formulate their own problems and conjectures, thus challenging their own ability to cope with the mathematical literature.

In fostering these goals the mathematical sciences curriculum provides grounding in the traditional areas of theoretical mathematics: calculus, mathematical foundations, linear and modern algebra, and real analysis. It also requires students to select a track of study based on future career or graduate school goals: pure mathematics, applied mathematics, or teacher preparation.

In seminars, independent study courses, and internships the student is encouraged to formulate and carry out research projects, working creatively with the literature in either pure or applied mathematics. In the senior year students work individually with a faculty member on their self-selected senior project, which culminates in a research paper and a presentation.

Leading to a Bachelor of Science degree, the program has been patterned to follow the recommendations of the Committee on Undergraduate Programming in Mathematics of the Mathematical Association of America.

Career Opportunities

Graduates in mathematics develop the type of creative thinking and problem-solving abilities required of professional mathematicians. As a consequence, they are well prepared to complete advanced study or pursue a wide variety of employment opportunities in industry, commerce, or the public sector. Graduates have secured positions in the areas of actuarial science, finance, operations research, computer programming, statistics, systems analysis, software engineering, and teaching. Others have received fellowships to pursue graduate study in mathematics or related areas.

Faculty

Professors: Saeed Ghahramani, Lorna Hanes, Lisa Hansen, Ann Kizanis, Dennis Luciano (chair), Richard Pelosi

Associate Professors: Jennifer Beineke, Q. Enam Hoq, Thomas Hull, David Mazur

Assistant Professor: Caleb M. Shor

Professional Educators: Pamela Omer, John Willemain

Director of the Math Center: Josephine Rodriguez

Program Objectives

The Mathematical Sciences major provides instruction and support for students in achieving the following objectives. It is our purpose that our students:

1. Learn mathematical habits of mind.
 - a. Correctly apply inductive and deductive reasoning skills.
 - b. Demonstrate correct use of formal mathematical language and ability to compose a mathematical proof.
 - c. Demonstrate the ability to successfully apply mathematical computations and algorithms.
 - d. Understand the connections between different branches of mathematics, as well as between mathematics and other disciplines.
2. Demonstrate fluency in mathematical communication.

- a. Write and speak about mathematics in a manner sensitive to the audience.
 - b. Read and understand mathematical literature.
3. Use technology relevant to mathematics.
 - a. Use technology to aid the understanding of new mathematical concepts, to solve difficult problems, and to communicate mathematics effectively.
 - b. Use technology that is current and relevant to their chosen career.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

1. Required mathematics and other courses (39 credit hours):

CS 170	Technology in Mathematics
CS 102	Introduction to Computing
MATH 133/134	Calculus I & II
MATH 235	Calculus III
MATH 276	Advanced Calculus
MATH 281/282	Foundations of Mathematics I & II
MATH 306	Linear Algebra
MATH 418	Introduction to Modern Algebra
MATH 421	Real Analysis
MATH 451/452	Senior Project I & II
2. Nine additional credit hours (three courses) selected from one of the following areas based on student interest:

Pure Mathematics

MATH 375	Problem Solving
MATH 377	Number Theory
MATH 378	Combinatorics
MATH 379	Graph Theory
MATH 412	Topology
MATH 427	Complex Analysis

Applied Mathematics

MATH 236	Differential Equations
MATH 369	Linear Programming
MATH 372	Probability
MATH 373	Statistical Modeling
MATH 378	Combinatorics
MATH 379	Graph Theory

MATH 420 Math Modeling

Teacher Preparation (* required)

MATH 371 Modern Geometry*

MATH 373 Statistical Modeling

MATH 375 Problem Solving

MATH 377 Number Theory*

3. Either BIO 107/108 with BIO 117/118, CHEM 105/106, PHYS 123/124, or PHYS 133/134 must be taken to satisfy the science core requirements. (PHYS 133/134 is recommended.)

The typical course schedule for a mathematical sciences major would be constructed from what follows. The first two years are common for all students while the latter two will be dictated by the elective area selected (pure, applied, or teacher prep). The elective/required courses that will be offered every other year would be: Creative Problem Solving in Mathematics, Statistical Modeling, Probability, Number Theory, Modern Geometry, Modern Algebra, Graph Theory, Combinatorics, Real Analysis, and Mathematical Modeling.

Suggested Sequence of Courses

Notes:

* Is a prerequisite

** Has a prerequisite

MR Major Requirement

GUR General University Requirement

A&SR College of Arts and Sciences Requirement

Freshman Year Credit Hours*Fall Semester*BIO 107 and 117, CHEM 105, PHYS 123, or
PHYS 133 (GUR/MR)* 4ENGL 132* English Composition I
(GUR) 3

MATH 133* Calculus I (GUR/MR) 4

LA 100 First Year Seminar (GUR) 2

HIST xxx Historical Perspective
(GUR) 3PEHR 151 Personal Health and
Wellness (GUR) 1

17*Spring Semester*CS 170 Technology in
Mathematics (MR) 3ENGL 133** English Composition II
(GUR) 3

MATH 134** * Calculus II (GUR/MR) 4

BIO 108 and 118, CHEM 106, PHYS 124, or
PHYS 134 (GUR/MR)** 4

PH 204

Symbolic

Logic (Recommended, not
required) 3

17**Sophomore Year****Credit Hours***Fall Semester*

MATH 235 ** *Calculus III (MR) 3

MATH 281 ** *Foundations of Mathematics I
(MR) 3ARTS xxx Aesthetic Perspective
(GUR) 3SBP xxx PSY/SO/EC/POSC/HIST/
CJ/ED (GUR) 3

GEN xxx General Electives 3

PEHR 153-199 Lifetime Activities Senses
(GUR) 1

16*Spring Semester*MATH 282 ** *Foundations of
Mathematics II (MR) 3

MATH 276 ** *Advanced Calculus (MR) 3

CS 102 Introduction to
Programming (MR) 4WIC 2xx Writing Intensive course
(A&SR) 3

GEN xxx General Electives 0-3

16**Junior Year****Credit Hours***Fall Semester*

MATH 306 ** Linear Algebra (MR) 3

MATH xxx Mathematics Elective 3

MATH 418 ** Modern Algebra (MR) 3

CUL xxx Cultural Studies
Perspective (GUR) 3

PH xxx Ethical Perspective (GUR) 3

GEN xxx General Electives 0-3

15*Spring Semester*

MATH 421 ** Real Analysis (MR) 3

MATH xxx Mathematics Elective 3-6

ILP xxx Integrated Liberal and
Professional Perspectives
(GUR) 3

GEN xxx General Electives 3-6

15

Senior Year		Credit Hours
<i>Fall Semester</i>		
MATH 451	Senior Project I (MR)	1
MATH xxx	Mathematics Electives	3-6
WIC xx	Writing Intensive course (A&SR)	3
GEN xxx	General Electives	6-9
		<hr/> 16
<i>Spring Semester</i>		
MATH 452	Senior Project II (MR)	2
MATH xxx	Mathematics Elective	6-9
GEN xxx	General Electives	1-5
		<hr/> 12-15

Note: The general university requirements in Aesthetics and Cultural Studies can be satisfied by taking a single course that has a designation of fulfilling both requirements.

Schedule of elective courses over a two year period:

Fall I:	MATH 378 Combinatorics
	MATH 379 Graph Theory
Spring I:	MATH 371 Modern Geometry
	MATH 420 Modeling
Fall II:	MATH 372 Probability
	MATH 375 Problem Solving
Spring II:	MATH 373 Statistical Modeling
	MATH 377 Number Theory

Actuarial Studies

Western New England University is committed to assisting students interested in pursuing a career in Actuarial Science by providing the following opportunities for a student to prepare for the early actuarial exams. The exams referenced below are administered jointly by the Society of Actuaries (SOA) and the Casualty Actuary Society (CAS). The designations for the exams are those used by the SOA.

Calculus Preliminaries – While the SOA and CAS no longer directly test calculus, it is assumed that a student is well-versed in these topics. In fact, the material for Exam P is calculus based.

Courses:

- MATH 133 Calculus I (or the equivalent AP Credit)
- MATH 134 Calculus II (or the equivalent AP Credit)
- MATH 235 Calculus III

Exam P (Probability) – This is one of the first exams that a student should focus on taking.

Course:

MATH 372 Probability – Prerequisite:
MATH 235

Exam FM (Financial Mathematics) – Ambitious students may be able to attempt this exam before graduation.

Course:

MATH 310 Topics in Actuarial Science

Exam M (Actuarial Models) – Ambitious students may be able to attempt this exam before graduation.

Course:

MATH 310 Topics in Actuarial Science

Validation by Educational Experience

In the most recent revision of the exam structure for actuaries, three major areas that were previously being tested by exams are now validated by a student receiving a B- or better in an approved course or courses. We now have approval for the courses in Corporate Finance and Economics. Our anticipation is that we will have approval for the Applied Statistical Methods course within the next two years. The three areas of study are:

Applied Statistical Methods

Course:

MATH 373 Statistical Modeling – Prerequisite:
MATH 235

Corporate Finance – Courses Approved

Course:

FIN 307 Investments – Prerequisite: FIN 214
FIN 320 Intermediate Corporate Finance
Prerequisite: FIN 214

Note: FIN 214 has a prerequisite of AC 201

Economics – Course Approved

Course:

EC 117 Principles of Quantitative Economics
Prerequisite: MATH 133

Internship

In addition to course study, most of our actuarial students also participate in an internship with one of the local insurance companies or other firms that use actuaries. Companies that have recently hosted internships include MassMutual Financial Group, GE Financial, and ING U.S. Financial Services.

MECHANICAL ENGINEERING MAJOR

College of Engineering

General Information

Mechanical engineering is one of the broadest and most diverse of the engineering disciplines and affects all aspects of our lives. It involves the application of science and technology essential to industry, government, environment, and society. Mechanical engineers design, analyze, build, test, and control mechanical devices and systems. They are involved in the design and development of automobiles, airplanes, satellites, robots, power plants, machine tools, material handling systems, medical devices and instrumentation, communications equipment, semiconductor devices, heating and air-conditioning systems, consumer products, and alternative energy systems. Mechanical engineers contribute on interdisciplinary teams to work in emerging areas such as advanced manufacturing processes, mechatronics, nanotechnology and Green Engineering technology. Mechanical engineering is generally recognized as the engineering discipline that offers the broadest choice of technical career directions.

The Mechanical Engineering curriculum provides a thorough background in thermal and mechanical systems and mechanical design. By selecting an appropriate group of technical and design electives, a student can concentrate in either thermal and fluid science or mechanical design. Thermal and fluid science electives include courses related to energy conversion, aerodynamics, introduction to flight, and turbomachinery design. Mechanical design electives include courses in stress analysis and computer-aided design, material selection, and metrology. The coursework is coupled with extensive practical hands-on experience in modern well-equipped laboratories. The use of computers to aid in engineering analysis and design is emphasized throughout the curriculum.

Students can choose to study either the broad areas of thermal-fluid sciences or mechanical design or select from two concentrations: 1) Green Engineering Concentration with courses in renewable energy, alternative energy systems, and green engineering; and 2) Manufacturing Concentration that is a blend

of mechanical and industrial engineering. The program leading to the B.S.M.E. degree is accredited by the Engineering Accreditation Commission of ABET Inc., 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, (410) 347-7700.

Career Opportunities

Mechanical engineers are employed in all types of industry and government. They work in research, product development, product design, manufacturing, consulting, and sales. Our graduates are employed at Allston Power, Hamilton Sundstrand, Disney, FloDesign, Goodrich, Northrup Grumman, Pratt and Whitney, United Technologies Research Center, General Dynamics, Boeing, Lockheed-Martin, Otis, Carrier, Hasbro-Bradley, General Motors, NASA, Electric Boat, Andersen Consulting, General Electric, Smith and Wesson, American Saw, Northeast Utilities, Rolls Royce, Areva, Gerber Scientific Research, Spalding Sports Worldwide, Sikorsky, Westinghouse, BAE systems, and many others. Mechanical Engineering graduates have also become physicians and patent attorneys. Mechanical engineers occupy executive positions in many large corporations and others have gone on to become entrepreneurs and founded their own companies..

Manufacturing Concentration

In the junior year, a student may choose to remain in the general mechanical engineering course of study or specialize with a concentration in manufacturing.

Manufacturing is the creation of useful products by various mechanical and thermal processes. Recent dramatic developments in computer hardware and software have transformed it into an exciting multidisciplinary field, one of the most computer intensive areas of modern engineering practice.

The concentration is designed to satisfy a growing demand for engineers with knowledge of robotics, interactive computer graphics, and computer-aided design and manufacturing.

This concentration is offered to provide a mechanical engineering graduate with special preparation in the area of manufacturing.

Green Engineering Concentration

As the growth of the world's populations and economies puts an ever increasing strain on the social and physical environment, today's engineers are faced with developing solutions that use renewable energy sources, reduce waste energy, minimize the impact on the environment, reduce poverty in the world, and provide prosperity for all.

In the junior year, a student may choose to remain in the general mechanical engineering course of study or specialize with a concentration in green engineering.

The Green Engineering Concentration is designed to satisfy the need for mechanical engineers with a thorough knowledge of (1) renewable energy sources such as wind, water, solar, and geothermal energy, (2) power generation, distribution, and management, (3) energy management, (4) principles of green engineering, and (5) life cycle analysis and materials selection for alternative energy systems.

Design Experience

Students are introduced to engineering design in the freshman year; sophomore, junior, and senior courses provide progressively more sophisticated design experiences within the student's discipline. All programs are culminated by a capstone Senior Design Project course in which a student works on an independent project under the supervision of a faculty advisor. A majority of the projects involve a collaboration with an industry partner. A student who selects one of these topics has the opportunity to work with the industrial sponsor in an actual engineering experience.

Electives

Electives supplement the engineering student's technical program. These electives must be selected in such a way that all General Education "perspective of understanding" requirements are covered. In addition, technical, design, and general electives provide the opportunity for specialization within a chosen field. The student's departmental faculty advisor must approve the selection of electives from engineering, mathematics, science, or business.

Vision

The vision of the Department of Mechanical Engineering is to be regionally, nationally and internationally recognized in providing mechanical engineering education, leading to well qualified engineers who are innovative, immediate contributors to their profession and successful in advanced studies.

Mission

The mission of the Department of Mechanical Engineering is to educate, prepare, and mentor students to excel as professionals and to grow throughout their careers in the art, science and responsibilities of engineering. This is accomplished by:

- Providing the facilities and environment conducive to a high quality education, well grounding the students in the fundamental principles of engineering and preparing them for diverse careers;
- Engaging in academic and scholarly activities, which strengthen the program's regional, national, and international reputation.

Educational Objectives

The objectives of the Mechanical Engineering program are to produce graduates whose careers and professional behavior are marked consistently by:

1. Technical competency in solving engineering problems, consistent with the ethics of the profession, and serving the needs of local, national, and multinational communities and enterprises with concern for social, economic, and environmental constraints;
2. Advancement in their professional careers, including increased technical or managerial responsibility, and the attainment of promotions and leadership positions;
3. Successful management of engineering projects of varying scope;
4. Effective technical communication and teamwork;
and
5. A commitment to continuing professional education.

Program Outcomes

Accordingly, the Program Outcomes of the Department of Mechanical Engineering are to educate graduates who by the time of graduation will be able to demonstrate:

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs;
- an ability to function on multi-disciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an understanding of professional and ethical responsibility;
- an ability to communicate effectively;
- an ability to apply their broad education toward the understanding of the impact of engineering solutions in a global and societal context;
- a recognition of the need for, and the ability to engage in life-long learning;
- a knowledge of contemporary issues; and
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;

Faculty

Professors: Said Dini, Mohammad Khosrowjerdi

Associate Professors: Bart Lipkens, Richard Mindek, Glenn Vallee, Mary Vollaro

Professors Emeriti: Robert Azar, Wellen Davison, Alan Karplus, Walter Presz, Henry Sundberg, Richard Veronesi

Course of Study Common Core

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- ER Engineering Requirement

Freshman Year

Fall Semester

ENGL 132*	English Composition I (GUR/ER/MR)	3
ENGR 102*	First Year Engineering Seminar (GUR/ER/MR)	1
ENGR 103*	Introduction to Engineering (GUR/ER/MR)	4
MATH 133*	Calculus I (GUR/ER/MR)	4
PHYS 133*	Mechanics (GUR/ER/MR)	4
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 17

Spring Semester

ENGL 133**	English Composition II (GUR/ER/MR)	3
ENGR 105*	Computer Programming for Engineers (GUR/ER/MR)	3
ENGR 110* **	Data Acquisition and Processing (GUR/ER/MR)	2
MATH 134* **	Calculus II (GUR/ER/MR)	4
PHYS 134* **	Electricity and Magnetism (GUR/ER/MR)	4
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/> 17

Sophomore Year

Credit Hours

Fall Semester

CHEM 105*	General Chemistry I (ER/MR)	4
EE 205* **	Electrical Engineering I (ER/MR)	4
MATH 236* **	Differential Equations (ER/MR)	3
ME 204* **	Engineering Mechanics I (ER/MR)	3
SBP xxx	Social/Behavioral Perspective (GUR/ER/MR) ¹	3
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Spring Semester

IE 212* **	Probability and Statistics (ER/MR)	3
MATH 235* **	Calculus III (ER/MR)	3
ME 207* **	Engineering Mechanics II (MR)	3
ME 205* **	Measurement Computing (MR)	2
ME 208* **	Mechanics of Materials (MR)	3
PH xxx	Ethical Perspective (GUR/ER/MR) ¹	3
LBC xxx	Learning Beyond the Classroom (GUR)	
		<hr/> 17

Mechanical Engineering Course of Study

Junior Year Credit Hours

<i>Fall Semester</i>		
MATH 350**	Engineering Analysis I (MR)	3
ME 303* **	Thermodynamics I (MR)	3
ME 309* **	Materials Science (MR)	3
ME 311* **	Mechatronics (MR)	3
ME 313* **	ME Laboratory I (MR)	2
CUL xxx	Cultural Perspective(GUR/ER/MR) ¹	3
		<hr/>
		17

Spring Semester

ME 304* **	Thermodynamics II (MR)	3
ME 314* **	ME Laboratory II (MR)	2
ME 316* **	Fluid Mechanics (MR)	3
ME 320* **	Mechanical Vibrations (MR)	3
	Engineering/Science Elective (MR) ²	3
HIST xxx	Historical Perspective(GUR/ER/MR) ¹	3
		<hr/>
		17

Senior Year Credit Hours

<i>Fall Semester</i>		
ME 417* **	Heat Transfer (MR)	3
ME 425**	Design of Machine Elements (MR)	3
ME 435**	ME Laboratory III (MR)	2
ME 439* **	Professional Awareness (MR)	1
ME 449 **	Computer-Aided Engineering (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
		<hr/>
		15

Spring Semester

IE 312**	Engineering Economic Analysis (MR)	3
ME 440**	Senior Design Projects (MR)	3
	General Elective (MR) ⁵	3
	Design Elective (MR) ³	3
	Engineering Elective (MR) ⁴	3
LBC xxx	Learning Beyond the Classroom (GUR)	
		<hr/>
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1. General Education courses must be selected in such a way to insure that all "perspectives of understanding" requirements have been satisfied. (See p. 37.)

2. An engineering, math, or science course usually numbered 300 or above selected from a list published by the Mechanical Engineering Department and approved by the faculty advisor.

3. A design elective is selected from a list published in each semester's course schedule.

4. An engineering course usually numbered 300 or above and approved by the faculty advisor.

5. General Elective selected on approval of the academic advisor.

Total credit hours required for graduation—132.

The 2.0 required minimum grade point average in the major is based upon all ME courses pursued in the student's degree program.

Manufacturing Concentration Course of Study

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
ER	Engineering Requirement

Junior Year Credit Hours

<i>Fall Semester</i>		
MATH 350* **	Engineering Analysis I (MR)	3
ME 303* **	Thermodynamics I (MR)	3
ME 309* **	Materials Science (MR)	3
ME 311* **	Mechatronics (MR)	3
ME 313* **	ME Laboratory I (MR)	2
CUL xxx	Cultural Perspective (GUR/ER/MR) ¹	3
		<hr/>
		17

Spring Semester

IE 312**	Engineering Economic Analysis (MR)	3
ME 322* **	Manufacturing Processes (MR)	3
IE 315**	Quality Control and Engineering Statistics (MR)	3
ME 314* **	ME Laboratory II (MR)	2
ME 316* **	Fluid Mechanics (MR)	3
HIST xxx	Historical Perspective (GUR/ER/MR) ¹	3
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		17

Senior Year Credit Hours

<i>Fall Semester</i>		
IE 326* **	Production Planning and Control (MR)	3
ME 417* **	Heat Transfer (MR)	3

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ME 425**	Design of Machine Elements (MR)	3
ME 435**	ME Laboratory III (MR)	2
ME 439* **	Professional Awareness (MR)	1
ME 449 **	Computer-Aided Engineering (MR)	3
		<hr/> 15
<i>Spring Semester</i>		
ME 440**	Senior Design Projects (MR) ³	3
	Manufacturing Design Elective (MR) ²	3
	General Elective (MR) ⁵	3
	Engineering Elective (MR) ⁴	3
ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
LBC xxx	Learning Beyond the Classroom (GUR)	
		<hr/> 15

1 General Education courses must be selected in such a way to insure that all "perspectives of understanding" requirements have been satisfied. (See p. 37.)

2 One design elective from the following list: IE 424 Computer Integrated Manufacturing, IE 334 Computer Simulation and Design or any other manufacturing design course approved by the department of Mechanical Engineering.

3 Select a senior design project topic that contains a manufacturing related component approved by the Department of Mechanical Engineering.

4 Select one engineering elective from the following list: IE 308 Work Analysis and Design, IE 410 Engineering Project Management, IE 422 Industrial Safety and Hygiene, ME 320 Mechanical Vibrations, ME 430 Metrology.

5 General Elective selected on approval of the academic advisor.

Total credit hours required for graduation – 132.

The 2.0 required minimum grade point average in the major is based on all ME and IE courses pursued in the student's degree program.

Green Engineering Concentration Course of Study

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- ER Engineering Requirement

		Junior Year	Credit Hours
		<i>Fall Semester</i>	
	MATH 350**	Engineering Analysis I (MR)	3
	ME 303* **	Thermodynamics I (MR)	3
	ME 309* **	Materials Science (MR)	3
	ME 311* **	Mechatronics (MR)	3
	ME 313* **	ME Laboratory I (MR)	2
	CUL xxx	Cultural Perspective (GUR/ER/MR) ¹	3
			<hr/> 17
		<i>Spring Semester</i>	
	EE 336* **	Electrical Energy Systems (MR)	3
	ME 314* **	ME Laboratory II (MR)	2
	ME 316* **	Fluid Mechanics (MR)	3
	ME 318* **	Design of Solar Energy Systems (MR)	3
	ME 320* **	Mechanical Vibrations (MR)	3
	HIST xxx	Historical Perspective (GUR/ER/MR) ¹	3
			<hr/> 17

		Senior Year	Credit Hours
		<i>Fall Semester</i>	
	ME 415* **	Wind/Water Turbine Fundamentals (MR)	3
	ME 417* **	Heat Transfer (MR)	3
	ME 425**	Design of Machine Elements (MR)	3
	ME 435**	ME Laboratory III (MR)	2
	ME 439* **	Professional Awareness (MR)	1
		Engineering Design Elective – Green (MR) ³	3
			<hr/> 15

		<i>Spring Semester</i>	
	IE 312**	Engineering Economic Analysis (MR)	3
	ME 440**	Senior Design Projects Green (MR) ⁴	3
	ME 449**	Computer-Aided Engineering (MR)	3
		Engineering Elective-Green (MR) ³	3
	ILP xxx	Integrated Liberal and Professional Perspective (GUR/ER/MR) ¹	3
	LBC xxx	Learning Beyond the Classroom (GUR)	
			<hr/> 15

1 General Education courses must be selected in such a way to insure that all "perspectives of understanding" requirements have been satisfied. (See p. 37.)

2 An engineering, math, or science course usually numbered 300 or above selected from a list published by the Mechanical Engineering Department and approved by the faculty advisor.

3 A green engineering course usually numbered 300 or above approved by the faculty advisor. At least one green elective must be a design course.

4. Select a senior design topic that contains a green engineering related component approved by the Department of Mechanical Engineering.

Total credit hours required for graduation -132.

The 2.0 required minimum grade point average in the major is based upon all ME and Green Engineering courses pursued in the student's degree program.

Five-Year Bachelor/MSME Program

This program allows undergraduate Mechanical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Mechanical Engineering (BSME) and to earn the master's degree in Mechanical Engineering (MSME) with just one additional year of study.

Five-Year Bachelor/MBA Program

This program allows undergraduate Mechanical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Mechanical Engineering (BSME) and to earn the master's degree in Business Administration (MBA) with just one additional year of study.

Five-Year Bachelor/MSEM Program

This program allows undergraduate Mechanical Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree in Mechanical Engineering (BSME) and to earn the master's degree in Engineering Management (MSEM) with just one additional year of study.

NEUROSCIENCE MAJOR

College or Arts and Sciences

General Information

Neuroscience is a field of study that integrates psychology, biology, and chemistry. Scientists from these various disciplines all work for a common goal; to understand the structure, development and function of the nervous system. Neuroscientists use an ever increasing range of tools, including fMRI, MEG, EEG, computers, dyes and microscopes to explore molecules, DNA, Nerve Cells, Networks, Brain Systems, and Behavior. Through their research, neuroscientists are able to describe the normal function of the human brain, which then allows them to understand and find ways to prevent or cure many devastating neurological and psychiatric disorders.

This major is housed in a research-rich environment that supports a curriculum steeped in scientific investigation, where students and faculty can work as partners in research and education.

Career Opportunities

Students who receive an undergraduate degree in Neuroscience typically continue their studies at the masters or doctoral level while others may choose to pursue advanced degrees in a variety of medical professions (M.D., D.D.O, D.D.S., V.D.M., O.D.). Career options include positions within neuroscience, psychiatry, medicine, academia, pharmaceuticals, forensic science, health and allied health professions, media science, and state and federal governmental science agencies.

Faculty

Professor: Sherallee Tershner

Student Competencies

As an undergraduate neuroscience major, students will study the nervous system, behavior and cognitive processes from a variety of perspectives. The neuroscience major has been patterned to follow the recommendations of the advisory committee of the Faculty for Undergraduate Neuroscience. Students, at the point of graduation, should be able to demonstrate the following core competencies:

- an awareness of critical natural science and psychological principles
- an awareness of experimental methodology, design and data analysis
- an awareness of historical trends and theoretical perspectives that inform the field
- an advanced awareness of a particular area or areas of study within neuroscience
- critical thinking and independent thought
- the ability to communicate effectively
- the ability to discern and articulate a rationale for ethical conduct in research
- awareness of how neuroscience is informed by perspectives from a wide range of disciplines beyond the sciences
- an appreciation of the value of diversity and the ability to work with colleagues from a variety of backgrounds and perspectives.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study for B.S.

There are four categories of required courses for the Neuroscience Major.

1. Core courses (26 credits)

PSY 101	Introduction to Psychology
NSCI 212	Introduction to Behavioral Neuroscience
PSY 207	Statistics for the Social Sciences
NSCI 267	Neurobiology
PSY 309	Research Methods
PSY 313	Learning
NSCI 405	Seminar in Neuroscience
PH 208	Ethics
	--or--
PH 231	Biomedical Ethics

2. Neuroscience electives (9 crs.)

Students must select three courses from within the neuroscience program (NSCI 300- 400 level) or from an approved list of electives

from the departments of Psychology, Biology or Chemistry.

3. Research requirements (17 credits)

A central mission of the neuroscience major is to provide opportunities for students to work closely with sponsoring faculty to learn experimental techniques and engage in neuroscience research. Students will have the opportunity to rotate through labs to observe and become familiar with various research practices and theories. Students are then required to select a faculty sponsor to engage in research in a more concentrated capacity. After placement, students will engage in a year -long senior thesis project.

NSCI 250	Neuroscience Lab Rotation I
NSCI 251	Neuroscience Lab Rotation II
NSCI 350	Neuroscience Lab Placement I
NSCI 351	Neuroscience Lab Placement II
NSCI 450	Senior Neuroscience Thesis I
NSCI 451	Senior Neuroscience Thesis II

4. Basic science and math courses (30 credits)

BIO 107	General Biology I
BIO 117	General Biology I Lab
BIO 108	General Biology II
BIO 118	General Biology II Lab
CHEM 105	General Chemistry I
CHEM 106	General Chemistry II
CHEM 209	Organic Chemistry I
CHEM 219	Organic Chemistry I Lab
CHEM 210	Organic Chemistry II
CHEM 220	Organic Chemistry II Lab
MATH 109	Pre-Calculus Mathematics
	— or —
MATH 123	Calculus I for Management, Life and Soc Sciences
MATH 120	Introductory Statistics
	— or —
MATH 124	Calculus II for Management, Life and Soc Sciences

Total credit hours for graduation - 122

Suggested Sequence of Courses

Notes:

- * is a prerequisite
- ** has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year

Fall Semester

PSY 101	Introduction to Psychology (MR)	3
ENGL 132	English Composition (GUR)	3
MATH 109/123	Pre-Calculus Mathematics (MR/GUR)	3
	— or —	
	Calculus I for Management, and Life and Social Sciences	
BIO 107& 117	General Biology I and Lab (MR/GUR)	4
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 16

Spring Semester

NSCI 212	Introduction to Behavioral Neuroscience (MR)	3
ENGL 133	English Composition (GUR)	3
MATH 120/124	Introductory Statistics for Arts and Sciences (MR/GUR)	3
	or Calculus II for Management, Life and Social Sciences	
BIO 108/118	General Biology II and Lab (MR/GUR)	4
PEHR 153-199	Lifetime Activities Series (GUR)	1
		<hr/> 14

Sophomore Year

Fall Semester

PSY 207	Statistics for the Social Sciences (MR)	3
NSCI 267	Neurobiology (MR)	4
PH 208/ 231	Ethics or Biomedical Ethics (MR/GUR)	3
CHEM 105	General Chemistry I (MR)	4
NSCI 250	Neuroscience Lab Rotation I (MR)	1
		<hr/> 15

Spring Semester

PSY 309	Research Methods (MR)	3
CS 13X	Computer Competence (GUR)	3
CHEM 106	General Chemistry II (MR)	4
NSCI 3xx	Neuroscience Elective (MR)	3
NSCI 251	Neuroscience Lab Rotation II (MR)	2
		<hr/> 15

Junior Year

Fall Semester

PSY 313	Learning (MR)	3
CHEM 209/219	Organic Chemistry I & Lab (MR)	4
WIC 2xx	Writing intensive Course (A&SR)	3
NSCI 3xx/4xx	Neuroscience Elective (MR)	3
NSCI 350	Neuroscience Lab Placement I (MR)	3
		<hr/> 16

Spring Semester

WIC 3xx	Writing Intensive Course (A&SR)	3
NSCI 405	Seminar in Neuroscience (MR)	4
NSCI 351	Neuroscience Lab Placement II (MR)	3
CHEM 210/220	Organic Chemistry II & Lab (MR)	4
		<hr/> 14

Senior Year

Fall Semester

ILP xxx	Integrated Liberal and Professional Requirement (GUR)	3
NSCI 3xx4xx	Neuroscience Elective (MR)	3
NSCI 450	Senior Neuroscience Research Thesis I (MR)	4
HIST xxx	Historical Perspective (GUR)	3
GEN xxx	General Elective	3
		<hr/> 16

Spring Semester

CUL XXX	Cultural Perspective (GUR)	3
NSCI 451	Senior Neuroscience Research Thesis II (MR)	4
ARTS xxx	Aesthetic Perspective (GUR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 16

PHILOSOPHY MAJOR

College of Arts and Sciences

General Information

Philosophers engage in critical, rigorous, disciplined reflection about the world around us, the social systems in which we live, and the individuals with whom we live. They ask such questions as, Does God exist? Do we have nonphysical souls or minds? Do we have free will? What is the difference between knowing and believing? How can we distinguish between moral right and wrong? Is there a best way of life for human beings to live? What rights do people have?

The questions that philosophers ask are those that most reflective people ask at some point in their lives. Philosophy differs from science in that the answers to its questions cannot be directly confirmed by appeal to perception and observation. That doesn't mean, though, that we cannot distinguish between more reasonable and less reasonable answers. Philosophers appeal to reason in answering their questions. That is, they critically evaluate the reasons for and against the various views one can have on these questions in order to determine what it is most reasonable to believe and do. They evaluate the arguments of others, analyze concepts, and construct arguments to defend their own views.

The study of philosophy helps develop our critical and analytical capacities, our ability to understand what we read, and our ability to argue and persuade. It helps us understand, appreciate, and respect other points of view. It reinforces respect for truth and love of learning. It enhances flexibility in thinking, imagination, and intellectual creativity, and nourishes the sense of wonder and the passion for wisdom. It increases sensitivity to moral issues and provides intellectual tools for thinking constructively about them. In sum, we might say that philosophy is food for the mind, perhaps for the soul.

Career Opportunities

The philosophy major prepares students for any career that requires or values the abilities to think rigorously, critically, and creatively; to communicate effectively orally and in writing; to comprehend what one reads; to analyze information and to appreciate the limits of

reliability and degrees of uncertainty; and to work effectively with others while respecting people with different points of view and from different cultural traditions. Most employers prize these abilities. In addition, almost every public and private institution, such as hospitals, social service agencies, corporations, and government departments, face complex ethical issues. People who have studied philosophy are in a particularly good position to help these institutions clarify the issues they face and make reasonable decisions.

Philosophy majors are among those who do best on the Law School Admission Test and who do best in law school, as well as medical school. The major in philosophy can also prepare highly motivated students for graduate study in philosophy.

Faculty

Professors: Emmett Barcalow, Glen Ebisch, Burton Porter

Assistant Professor: Heather Salazar

Program Objectives

- To provide students with knowledge of major figures and trends in the history of philosophy.
- To provide students with knowledge of the major ethical and political theories in the Western tradition.
- To provide students with knowledge of the religions of the world.
- To provide students with the intellectual skills that will enable them to apply philosophical theories to real world problems encountered in personal and family life, at work, and as citizens of a democracy.
- To deepen students' understanding of and respect for different religious and ethical views and traditions.
- To encourage students to evaluate carefully the reliability of sources of information and the reasonability of what they read and hear.
- To enhance students' ability to comprehend what they read.

- To enhance students' ability to make inferences and see logical connections among claims.
- To enhance students' ability to communicate effectively in writing and orally.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

Required Courses

PH 103	Introduction to Philosophy
PH 110	Critical Thinking
	— or —
PH 204	Symbolic Logic
PH 208	Ethics
PH 230	Social and Political Philosophy
PH 320	Western Religions
PH 321	Eastern Religions
PH 340	Ancient and Medieval Philosophy
PH 341	Modern and Contemporary Philosophy
Two other Philosophy courses at the 200 or 300 level	
MATH 120	Introductory Statistics for Arts and Sciences

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

ENGL 132	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH 1xx	Mathematical Analysis (GUR)	3
PH 103	Introduction to Philosophy (MR)	3
CS 13x	Computer Competence (GUR)	3
PEHR 151	Personal Health and Wellness (GUR)	1

Spring Semester

ENGL 133	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (MR)	3
PH 110	Critical Thinking (MR)	3
	— or —	
PH 204	Symbolic Logic	3
HIST xxx	Historical Perspective (GUR)	3
PEHR 153-199	Lifetime Activities Series (GUR)	1
GEN xxx	General Elective	3
		<hr/> 16

Sophomore Year Credit Hours

Fall Semester

GEN xxx	General Electives	3
PH 208	Ethics (MR and GUR Ethical Perspective)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
PSY/SO xxx	Behavioral Science Perspective (GUR)	3
CUL 2xx	Cultural Studies Perspective (GUR)	3
		<hr/> 15

Spring Semester

LAB/NSP xxx	Natural Science Perspective (GUR)	3
PH 230	Social and Political Philosophy (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
GEN xxx	General Elective	3
WIC 2xx	Writing Intensive course (A&SR)	3
		<hr/> 15

Junior Year Credit Hours

Fall Semester

PH 320	Western Religions (MR)	3
PH 2xx/3xx	Philosophy Elective	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
GEN xxx	General Electives	6
		<hr/> 15

Spring Semester

PH 321	Eastern Religions (MR)	3
PH 2xx/3xx	Philosophy Elective	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3

GEN xxx	General Electives	4
WIC 3xx	Writing Intensive course (A&SR)	3
		<hr/> 16

Senior Year **Credit Hours**

Fall Semester

PH 340	Ancient and Medieval Philosophy (MR)	3
GEN xxx	General Electives	12
		<hr/> 15

Spring Semester

PH 341	Modern and Contemporary Philosophy (MR)	3
PH 480	Internship in Philosophy(MR)	3
GEN xxx	General Electives	9
		<hr/> 15

POLITICAL SCIENCE MAJOR

(FORMERLY GOVERNMENT)

College of Arts and Sciences

General Information

The general objective of the Political Science major is to equip students with the analytical tools necessary to understand political processes at work within their own and other societies as well as among states in the global community. The major program offers a wide variety of courses in the areas of American government, comparative politics, international relations, and political thought. Political science majors benefit from an active internship program that places eligible students in business and industry as well as local, state, and federal government.

Career Opportunities

Graduates of the program attend law school as well as graduate programs in political science, public administration, and business in many parts of the country. Others enter government service or pursue careers in diverse areas ranging from education to business.

Faculty

Professors: William Mandel, Donald Williams, Vladimir Wozniuk

Associate Professors: Peter Fairman, Timothy Vercellotti

Program Objectives

1. To assist students in acquiring a more sophisticated understanding of politics in the United States.
2. To develop an appreciation for political processes at work within other societies.
3. To equip students with the analytical tools necessary to understand political processes at work among states in the global community.
4. To accommodate individual interests by providing a wide variety of courses in the areas of American government, comparative government, international relations, and political thought.

5. To provide opportunities for students to pursue internships in local, state, and federal government.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

- Required Political Science courses (24 credit hours)

POSC 101	Introduction to Contemporary Global Issues
POSC 102	American National Government
POSC 201	Comparative Politics
POSC 203	International Relations
POSC 207	Western Political Thought
POSC 212	Political Analysis
POSC 205	Public Administration
	— or —
POSC 210	State Politics in America
	— or —
POSC 218	Public Policy in America
POSC 490	Seminar in Government
GEOG 101	World Geography
	— or —
GEOG 110	Geography of United States and Canada
- Twenty-one additional credit hours of political science including 15 additional credit hours of upper-level courses (POSC 300-400). The 15 upper-level credit hours must include three credit hours each of comparative government, international relations, and American government.
- Eighteen credit hours in social sciences including EC 111 and EC 112, and at least three credit hours in geography, history, and psychology. Also students must take MATH 120.
- The 2.0 required grade point average in the major is based upon all POSC courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

The schedule of courses below is a sample sequence for a Political Science major. Many students become Political Science majors in their sophomore year and fulfill the major requirements without academic sacrifice.

Notes:

- * Is a prerequisite
- ** Has a prerequisite
- MR Major Requirement
- GUR General University Requirement
- A&SR College of Arts and Sciences Requirement

Freshman Year

Fall Semester

		Credit Hours
HIST xxx	History Requirement (GUR)	3
POSC 102*	American National Government (MR)	3
MATH 1xx *	Mathematical Analysis (GUR)	3
ENGL 132*	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
		<hr/> 14

Spring Semester

POSC 101	Introduction to Contemporary Global Issues (MR)	3
PSY 101	Introduction to Psychology	3
MATH 120**	Introductory Statistics for the Arts and Sciences (GUR)	3
GEN xxx	General Elective	3
PEHR 151	Personal Health and Wellness (GUR)	1
ENGL 133**	English Composition II (GUR)	3
		<hr/> 16

Sophomore Year

Fall Semester

		Credit Hours
POSC 201**	Comparative Politics (MR)	3
POSC 203**	International Relations (MR)	3
EC 111	Principles of Economics I (MR)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
PEHR 153-159	Lifetime Activities Series (GUR)	1
GEN xxx	General Elective	3
		<hr/> 16

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<i>Spring Semester</i>		GEN xxx	General Elective	3	
POSC 207**	Western Political Thought (MR)	3	GEN xxx	General Elective	3
EC 112	Principles of Economics II (MR)	3	GEN xxx	General Elective	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3			<hr/> 15
POSC 2xx**	Political Science Elective (MR)	3	*Two courses must be designated as writing intensive courses.		
POSC 212	Political Analysis	3			
		<hr/> 16			

Junior Year Credit Hours

<i>Fall Semester</i>				
PH xxx	Ethical Perspective (GUR)	3		
CS 13x	Computer Competence (GUR)	3		
POSC 2xx/3xx**	Political Science Elective (MR)	3		
ART xxx	Aesthetic Perspective (GUR)	3		
GEOG 101	Introduction to Geography (MR)	3		
	— or —			
GEOG 110	Geography of the United States and Canada (MR)	3		
		<hr/> 15		

<i>Spring Semester</i>				
POSC 3xx**	Upper Level Political Science Elective (MR)	3		
POSC 3xx**	Upper Level Political Science Elective (MR)	3		
GEN xxx	General Elective	3		
SBP xxx	Social/Behavioral Science Perspective (MR)	3		
CUL xxx	Cultural Studies Perspective (GUR)	3		
		<hr/> 15		

Senior Year Credit Hours

<i>Fall Semester</i>				
POSC 3xx**	Upper Level Political Science Elective (MR)	3		
POSC 3xx**	Upper Level Political Science Elective (MR)	3		
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3		
GEN xxx	General Elective	3		
GEN xxx	General Elective	3		
		<hr/> 15		

<i>Spring Semester</i>				
POSC 490**	Seminar in Political Science (MR)	3		
GEN xxx	General Elective	3		

PRE-PHARMACY

College of Arts and Sciences

General Information

The Pre-pharmacy program offered by the College of Arts and Sciences provides an opportunity for qualified students to prepare for admission to any school of pharmacy leading to a Doctor of Pharmacy Degree. More specifically, students who successfully complete all of the requirements of the Western New England University Pre-pharmacy program will be placed in the “preferred” applicant pool for entry into the Western New England University College of Pharmacy. Following submission of their application by the deadline established by the College of Pharmacy, preferred applicants are granted an automatic interview with the College of Pharmacy admissions committee. All other students will be placed in the general applicant pool.

To successfully satisfy the requirements of the Western New England University Pre-pharmacy program, a student must:

- Complete the required 67 credits within two academic years as listed below for each fall and spring semester (Please note: It is important that prepharmacy students demonstrate a capacity to handle 17 and 18 credit semesters, therefore, any credits taken outside the fall and spring semesters listed below must be replaced by courses of comparable rigor as determined in consultation with the student’s academic adviser.)
- Transfer in no more than 4 credits (including AP credits) of science coursework completed prior to matriculation at Western New England University and, following matriculation, transfer in no credits for any course satisfying a requirement for the Pre-pharmacy program
- Maintain an overall GPA of 3.30 for all Pre-pharmacy course work with no grade in any course less than a “C”. Students may not withdraw from or retake any course that would have satisfied any of the Pre-pharmacy requirements

Program Summary

First Year

First Semester

BIO 107	General Biology I	3
BIO 117	General Biology I Laboratory	1
CHEM 105	General Chemistry I	4
ENGL 132	English Composition I	3
MATH 123	Calculus for Management, Life, and Social Sciences I	3
PSY 101	Introduction to Psychology	3
		<hr/> 17

Second Semester

BIO 108	General Biology II	3
BIO 118	General Biology II Laboratory	1
CHEM 106	General Chemistry II	4
MATH 120	Statistics for Arts and Sciences	3
ENGL 133	English Composition II	3
COMM 102	Public Speaking	3
		<hr/> 17

Second Year

First Semester

PHYS 123	Physics for Pharmacy	4
CHEM 209	Organic Chemistry I	3
CHEM 219	Organic Chemistry Laboratory I	1
BIO 215	Anatomy and Physiology I	4
PH 208	Ethics	3
		<hr/> 15

Second Semester

CHEM 210	Organic Chemistry II	3
CHEM 220	Organic Chemistry Laboratory II	1
EC 111	Principles of Economics I	3
BIO 203	Microbiology	4
BIO 216	Human Anatomy and Physiology II	4
SSEL xxx	Social Science Elective*	3
		<hr/> 18

* Note: Social Science Elective can be met with one course (three credit hours) in one of the following subjects: history, sociology, political science, law and society.

PSYCHOLOGY MAJOR

College of Arts and Sciences

General Information

Psychology is the scientific study of behavior. In addition to helping students understand themselves and others, the research findings of psychology have wide application to many professional fields, from human services to medical, industrial, and educational settings. Within the major there is flexibility to select courses that meet individual career objectives. The Psychology Department offers students the opportunity to receive either the B.A. or the B.S. degree. The B.S. degree includes all of the requirements of the B.A. degree, along with an additional 12 credits of any combination of science courses, as well as an additional six credits of research courses in Psychology. Students interested in pursuing a research methods track should take one or more of our advanced research courses (PSY 35x on p. 315). Students interested in the Neuroscience major should see p. 159 for a full description of the Neuroscience program. Students may also pursue teacher certification at the elementary level by also majoring in Elementary Education, or receive training in special education by participating in the New England Center for Children program (see p. 32).

Career Opportunities

Students are prepared to enter the world of work in counseling, personnel administration, human service agencies, special education, elementary school teaching; to continue their studies at the graduate level; or to enter related fields such as medicine, law, criminal justice, and social work.

Faculty

Professors: Christopher Hakala, Dennis Kolodziejski, Denine Northrup

Associate Professors: Jessica Carlson, Greg Hanley, Dongxiao Qin, Rachel Thompson

Assistant Professors: Ava Kleinmann, Jason Seacat, Amanda Karsten

Program Objectives

1. To study human and other animal behavior from a scientific perspective with consideration of the environmental, biological, and multicultural influences on behavior.
2. To introduce students to the scientific findings of psychology as they relate to diverse populations and as they apply to a range of professional fields including medicine, human services, industry, and educational settings.
3. To provide flexibility of course selection to meet individual career objectives.
4. To encourage internships and minors in related fields of interest.

Student Competencies

Students who complete the degree requirements in psychology should be able to:

- identify the environmental, biological, and multicultural influences on behavior.
- differentiate and appreciate the value of primary research literature in psychology compared to popular media reports.
- understand and perform statistical analyses and know how to generate an original research hypothesis.
- demonstrate how psychologists use the scientific method to generate psychology's knowledge base.
- gather information in psychology using a variety of relevant resources including PsycINFO database, MedLine, etc.
- prepare papers using an APA format.
- demonstrate sensitivity to issues of human diversity as they apply to psychological research and practice.
- understand how contemporary psychology evolved from its historical roots.
- demonstrate what ethical principles apply to psychologists in testing, counseling, and research.

Student Assessment

Students' progress in psychology is assessed in a variety of ways and may include: objective and essay quizzes and examinations, class attendance and participation, journals, individual and group projects, oral presentations, poster sessions, research papers, critical review papers, videotaping, and simulations.

Students are encouraged to keep a portfolio of their work as a means of tracing their own development, as well as to demonstrate their abilities and accomplishments when applying to graduate school and/or for positions in the field of psychology.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study for B.A.

- Required courses (27 credit hours):

PSY 101	Introduction to Psychology
PSY 201	Developmental Psychology
PSY 207	Statistics for the Behavioral Sciences
PSY 214	Social Psychology
PSY 309	Research Methods
NSCI 212	Introduction to Behavioral Neuroscience (formerly PSY 312)
PSY 313	Learning
PSY 326	Abnormal Psychology
PSY 420	History of Psychology
- Nine additional credit hours required in upper-level psychology (PSY 300-400) courses. Note that for the B.S. degree these credit hours may include the required upper level research courses in psychology.
- Three additional credit hours in a multicultural perspectives course or an approved equivalent.

The 2.0 required grade point average in the major is based on all PSY courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year

Credit Hours

Fall Semester

PSY 101*	Introduction to Psychology (MR)	3
ENGL 132*	English Composition I (GUR)	3
LA 100	First Year Seminar (GUR)	2
HIST 1xx	Historical Perspective (GUR)	3
MATH xxx	Mathematical Analysis (GUR)	3
PEHR 151	Personal Health and Wellness	1
		<hr/> 15

Spring Semester

PSY 201* **	Developmental Psychology (MR)	3
ENGL 133**	English Composition II (GUR)	3
CS 13x	Computer Competence (GUR)	3
PSY 214	Social Psychology (MR)	3
MATH 120	Introductory Statistics for Arts and Sciences (GUR)	3
PEHR 153-199	Lifetime Activities Series	1
		<hr/> 16

Sophomore Year

Credit Hours

Fall Semester

PSY 207* **	Statistics for the Behavioral Sciences (MR)	3
PSY 313* **	Learning (MR)	3
PH xxx	Ethical Perspective (GUR)	3
SBP xxx	Social /Behavioral Perspective (GUR)	3
BIO 101	Basic Biology: Organisms	3
		<hr/> 15

Spring Semester

PSY 309 * **	Research Methods (MR)	3
NSCI 212	Introduction to Behavioral Neuroscience	3
WIC 2xx	Writing Intensive course (A&SR)	3
GEN xxx	General Elective	3

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NSP xxx	Natural Science Perspective	3
		<hr/> 15

Junior Year¹ **Credit Hours**

<i>Fall Semester</i>		
PSY 3xx/4xx	Psychology Required (MR)	3
PSY 326	Abnormal Psychology (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
SBMP xxx	Multi Cultural Perspectives ² (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		<hr/> 15

1. Students should consider enrolling in PSY 35x Advanced Research and/or PSY 480 Internship in Psychology during this year and their senior year. Please see the staff in the Career Center for a listing of Internship sites.

2. Note that most courses in the African American Studies or Latin American Studies minors fulfill this requirement.

Spring Semester

PSY 3xx/4xx	Psychology Required Elective (MR)	3
PSY 3xx/4xx	Psychology Required Elective (MR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
CUL xxx	Cultural Studies Perspective (GUR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	1
		<hr/> 16

Senior Year³ **Credit Hours**

<i>Fall Semester</i>		
PSY 420	History of Psychology (MR)	3
GEN 3xx/4xx	General Elective	3
GEN 3xx/4xx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 15

Spring Semester

GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 15

3. Students intending to Study Abroad, or intending to become certified as teachers in elementary education, or intending to enroll in the New England Center for Children program, may need to take all of their major requirements except for PSY 420, by the end of their junior year so that one semester of their senior year would be free to go abroad, or to take the Student Teaching Practicum, or participate in the NECC program. Student Teaching Practicum students must also take PSY 304 and ED 301 prior to their senior year. In addition, these students should refer to the elementary education program requirements that list the necessary prerequisites for Teacher Certification, including the specific math, history, government and other requirements necessary for teacher certification in Massachusetts.

SOCIAL WORK MAJOR

College of Arts and Sciences

General Information

The study of professional social work is designed for those dedicated to helping people to satisfy their biological, psychological, and social needs; to developing mutually beneficial relationships between people and their environments; and to empowering people to recognize and mobilize their strengths; to helping society to create policies and programs more responsive to human need.

The overall mission of the Department of Social Work is to prepare students for generalist social work practice at the bachelor's degree level and for graduate level social work education. This preparation is developed through offering the student a broad liberal arts education combined with a social work foundation that incorporates the knowledge, values, and skills of the social work profession. Both the liberal arts sequence and the professional social work sequence emphasize a holistic view of the person-in-environment and the impact of biological, psychological, and social forces upon human functioning. Underlying the knowledge base of social work education at Western New England University are values and ethics that emphasize the worth and dignity of all people regardless of race, gender, age, creed, ethnic or national origin, ability, political orientation, sexual orientation, or social class. The goals and objectives of the Department of Social Work teach students the skills to work in partnership with clients to support and develop strengths and competencies to procure the resources necessary to meet their basic human needs and develop human potential. This Social Work Program is accredited by the Council on Social Work Education at the BSW level and students are eligible to apply for advanced standing to graduate schools of social work, to obtain an MSW degree in one year, rather than two.

Career Opportunities

Students develop the knowledge, values, and skills to work in a wide variety of social service settings under both governmental and private voluntary auspices. Rewarding career opportunities include work with diverse

populations of children and adults at the individual, family, group, and community levels in agencies that provide healthcare, services to abused and neglected children, mental health services, substance abuse rehabilitation, family services, services to battered women, residential child care and treatment, educational settings, criminal justice programs for juvenile and adult offenders, nursing home and elderly services, services for pregnant and parenting teens, services to people affected by HIV/AIDS, and many other programs for people whose emotional and/or physical health and safety are at risk. Students are prepared for entry-level professional generalist social work practice at the BSW level and for further social work education at the graduate level.

Faculty

Professors: Jeff Schrenzel, Sara Weinberger

Professional Educator: Paula Nieman

Program Goals

1. Engage in evidence-based entry level social work practice within individuals, families, groups, communities and organizations within a multicultural society.
2. Identify and respond to human need, wherever it exists, using interventions that promote the social welfare of all people, with attention to oppressed and vulnerable populations.
3. Understand and practice to enhance human functioning, informed by biological, psychological, sociological, cultural, historical, economic and spiritual knowledge.
4. Identify as a social work practitioner/ researcher who can competently apply and integrate theory with evidence-based practice.
5. Facilitate change through professional practice within a professional context that nurtures diverse human relationships at all levels.
6. Engage in policy practice to advance social and economic well-being and to deliver effective social work services.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Requirements for Acceptance into the BSW Program

1. Students apply during the second semester of their sophomore year. (Transfer students at the junior level must also apply for admission to the social work program prior to beginning their social work methods courses.)
2. Students need to have a minimum grade point average of 2.2 and a grade of "C" or better in any social work course taken. (Except for transfer students who have not taken these courses.) A grade of less than a "C" will necessitate repeating the course.
3. Students submit to the department chair a completed application form, a personal essay that shows evidence of a desire to help others and values consistent with the social work profession, a sample of the student's academic writing, and a letter of reference.
4. Interview with department chair.

The admissions process for social work students is used as a vehicle to make sure that those students who become social work majors have a sincere desire to pursue this degree.

(Please note a grade of "C" or better is needed in all social work classes taken.)

Required Courses

SW 100	Introduction to Social Work
SW 216	Human Behavior and the Social Environment
SW 300	Social Work: Pre-Practicum Seminar
SW 301	Social Work Interventive Methods I (The Helping Process)
SW 302	Social Work Interventive Methods II (Social Work Interviewing Skills)
SW 303	Social Work Interventive Methods III (Social Work Practice with Communities and Organizations)

SW 305	The Helping Relationship Project
SW 313	Social Welfare and Social Policy
SW 314	Field Instruction in Macro Practice
SW 300	Pre-Practicum Seminar
SW 320	The Dynamics of Oppression and Empowerment
SW 321	Empowerment Practice with Underserved Populations
SW 404	Social Work Interventive Methods IV (Social Work Practice with Families)
SW 409-412	Field Instruction in Social Work I-IV
SW 414	Field Instruction Seminar I
SW 415	Field Instruction Seminar II
SW 419	Social Work Research
SW 420	Social Work Research Seminar
POSC 102	American National Government Social and Behavioral Perspective
SO 101	Introduction to Sociology Social and Behavioral Perspective
PSY 101	Introduction to Psychology Social and Behavioral Perspective
PSY 201	Developmental Psychology or another human development course as approved by BSW Department Chair
EC 106	The Economics of Poverty and Discrimination
BIO 101	Basic Biology: Organisms
LAB/NSP xxx	Natural Science Perspective
MATH 120	Natural Science Perspective
PH 210	Math Statistics (GUR)
	Ethics for Social Workers
ENGL 336	Ethical Perspective
	Ethnic American Literature or a literature course about an oppressed group approved by BSW Department Chair
SPAN 140	Literature requirement
	Spanish for Social Services

Note: Requirements for the major can satisfy the student's perspectives of understanding requirements.

Total credit hours required for graduation – 124.

The 2.2 required grade point average in the major is based on all SW courses pursued as part of the student's degree program.

Suggested Sequence of Courses

Notes:

#	Must be taken in sequence
*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GUR	General University Requirement
A&SR	College of Arts and Sciences Requirement

Freshman Year Credit Hours

Fall Semester

LA 100	First Year Seminar (GUR)	2
LA 101	Freshman Field Experience (MR)	1
MATH 1xx	Mathematical Analysis (GUR)	3
ENGL 132*	English Composition I (GUR)	3
SW 100*	Introduction to Social Work (GUR/MR)	3
PSY 101*	Introduction to Psychology (A&SR/GUR/MR)	3
PEHR 151*	Personal Health and Wellness	1
		<hr/> 16

Spring Semester

ENGL 133**	English Composition II (GUR)	3
POSC 102*	American National Government (A&SR/MR)	3
CS 13x	Computer Competence (GUR)	3
SO 101	Introduction to Sociology (A&SR/MR)	3
PEHR 153-199**	Lifetime Activities Series (GUR)	1
HIST xxx	Historical Perspective (GUR)	3
		<hr/> 16

Sophomore Year Credit Hours

Fall Semester

SW 216* **	Human Behavior and the Social Environment (MR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR/MR)	3
PSY 201	Developmental Psychology (MR)	3

BIO 101	Introduction to Biology (GUR/MR)	3
GEN xxx	General Elective	3
		<hr/> 15

Spring Semester

GEN xxx	General Elective	3
EC 106*	The Economics of Poverty and Discrimination (MR)	3
ARTS xxx	Aesthetic Perspective (GUR)	3
— or —	Cultures/Aesthetics course (CA)	
— or —	General Elective	
SPAN 140	Spanish for Social Services (MR)	3
NSP xxx	Natural Science Perspective (GUR/MR)	3
		<hr/> 15

Junior Year

Fall Semester

SW 301#** *	Social Work Interventive Methods I (MR)	4
SW 320#	Dynamics of Oppression and Empowerment (MR)	3
PH 210**	Ethics for Social Workers (A&SR/GUR/MR)	3
CUL 2xx	Cultural Studies Perspective (GUR)	3

— or —

Cultures/Aesthetics course (CA)

— or —

General Elective

SW 300**	Social Work Pre-Practicum Seminar	1
		<hr/> 14

Spring Semester

SW 302#**	Social Work Interventive Methods II (MR)	3
SW 313#**	Social Welfare and Social Policy (MR)	3
SW 321**	Empowerment Practice with Underserved Populations	3
SW 303#**	Social Work Interventive Methods III (MR)	3
SW 314**	Field Instruction in Macro Practice (MR)	3
SW 305#**	The Helping Relationship Project (MR)	2

— or —

General Elective

		<hr/> 17
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Senior Year	Credit Hours	
<i>Fall Semester</i>		
SW 404#**	Social Work Interventive Methods IV (MR)	3
SW 419**	Social Work Research (MR)	3
SW 409#**	Field Instruction in Social Work IA (MR)	3
SW 410#**	Field Instruction in Social Work IB (MR)	3
SW 414#**	Seminar in Field Instruction I (MR)	1
ILP xxx	Integrated Liberal and Professional Perspectives (GUR)	3
		16
<i>Spring Semester</i>		
GEN xxx	General Elective	3
SW 411#**	Field Instruction in Social Work IIA (MR)	3
SW 412#**	Field Instruction in Social Work IIB (MR)	3
SW 415#**	Seminar in Field Instruction II (MR)	2
SW 420#**	Social Work Research Seminar	1
ENGL 336	Ethnic American Literature or Literature of a Specific Minority Population (A&SR/MR)	3
		15

Note: Two writing intensive courses will be designated from our Social Work courses:

WIC 2xx Writing Intensive (A&SR)

WIC 3xx Writing Intensive (A&SR)

SOCIOLOGY MAJOR

College of Arts and Sciences

General Information

The sociological perspective helps us to recognize that individuals' lives are shaped by society. Sociologists learn to see social patterns in individual behavior and to apply scientific reasoning to all aspects of social life. Areas of special interest include the family, education, the economy, poverty, social inequality, social change, and deviance. While contemporary American society is the main focus of the major, comparative and cross-cultural approaches are also included. The unique perspective and insight offered by sociology provide a significant opportunity to understand forces that shape and determine our lives. Research and writing skills are emphasized, and students have an opportunity to conduct their own research.

Career Opportunities

The sociology major provides an excellent background for careers in teaching, career counseling, personnel management, insurance, school administration, health administration, state police, and corrections.

Faculty

Associate Professor: Michaela Simpson

Assistant Professor: Laura Hansen

Program Objectives

1. To understand the social forces that shape individual lives.
2. To understand the processes of social development and social structure.
3. To understand the methods and theories of social research.
4. To understand the value of comparative social analysis.
5. To understand human interaction, people in groups, and modes of social organization.
6. To understand contemporary social issues.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

- Required sociology and psychology (21 credit hours)

SO 101	Introduction to Sociology
SO 203	Social Problems
PSY 207	Introduction to Statistics for the Social Sciences
SO 310	Cultural Anthropology in the 21st Century
SO 322	Sociological Theory and Methods
SO 301	Research Methods
SO 324	Comparative and Historical Sociology

Fifteen additional credit hours with at least two selected from upper-level courses in sociology (300-level or above) and at least one being an additional research methods course.

Twelve (12) additional general elective credits at the 300-400 level.

- Twelve additional credit hours in Area II to consist of three credit hours each of economics, government, history, and psychology. (Also satisfies the Area II requirement)

The 2.0 required grade point average in the major will be based upon PSY 207 and all SO courses pursued as a part of the student's degree program.

Suggested Sequence of Courses

Notes:

- | | |
|------|--|
| * | Is a prerequisite |
| ** | Has a prerequisite |
| MR | Major Requirement |
| GUR | General University Requirement |
| A&SR | College of Arts and Sciences Requirement |

Freshman Year

		Credit Hours
<i>Fall Semester</i>		
SO 101*	Introduction to Sociology (MR)	3
ENGL 132*	Composition I (GUR)	3

HIST xxx	Historical Perspective (GUR/MR)	3
CS 131	Computing for the Arts and Sciences (GUR)	3
LA 100	First Year Seminar (GUR)	2
MATH xxx*	Mathematical Analysis (GUR)	3
		<hr/>
		17

Spring Semester

ARTS xxx	Aesthetics Perspective (A&SR)	3
PH xxx	Ethical Perspective (A&SR)	3
ENGL 133**	English Composition II (GUR)	3
PSY xxx	Behavioral Science Requirement (A&SR/MR)	3
MATH 120**	Introductory Statistics for the Arts and Sciences (GUR/MR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/>
		16

Sophomore Year

Fall Semester

		Credit Hours
SO 203	Social Problems	3
EC xxx	Social Science Requirement (A&SR/MR)	3
CUL 2xx**	Cultural Studies Perspective (GUR)	3
PEHR 155-199	Lifetime Activities Series (GUR)	1
LIT xxx	Literature Requirement (A&SR)	3
LAB xxx	Laboratory Science Requirement (GUR)	3
		<hr/>
		16

Spring Semester

SO 211**	Sociology of Minority Groups (MR)	3
SO 310	Cultural Anthropology in the 21st Century (MR)	3
LIT xxx	Literature Requirement (A&SR)	3
POSC xxx	Political Science Requirement (A&SR/MR)	3
LAB/NSP xxx	Natural Science Perspective (GUR)	3
		<hr/>
		15

Junior Year		Credit Hours
<i>Fall Semester</i>		
PSY 207*	Statistics for the Social Sciences (MR)	3
SO 322	Social Theory (MR)	3
SO 324**	Comparative and Historical Sociology (A&SR)	3
GEN xxx	General Electives	6
		<hr/> 15
<i>Spring Semester</i>		
SO 301**	Research Methods (MR)	4
SO 3xx/4xx	Sociology Elective (MR)	3
GEN xxx	General Electives	8-9
		<hr/> 15-16

Senior Year		Credit Hours
<i>Fall Semester</i>		
SO 410**	Social Change (MR)	3
GEN xxx	General Electives (MR)	12
		<hr/> 15
<i>Spring Semester</i>		
SO 341**	The Sociology of Work (MR)	3
SO 413**	Social Inequality and Justice (MR)	3
ILP xxx	Integrated Liberal and Professional Perspectives	3
GEN 3xx/4xx	General Electives (MR)	6
		<hr/> 15

Note: Students must take PSY 207 and SO 322 Social Theory in the fall of their junior year. This prepares them for SO 301 Research Methods offered in the Spring Semester.

SPORT MANAGEMENT MAJOR

College of Business

General Information

The Sport Management program emphasizes the business side of sports. Students majoring in sport management engage in a course of academic study that prepares them for a rewarding career in sport-related organizations. The Sport Management major understands the unique dynamics of the sport industry and is able to mobilize the resources available to meet the mission, goals, and objectives of both the sport organization and its stakeholders. The Sport Management program provides students with the opportunity to develop the knowledge and skills they need to manage within the sport industry. Students are also provided with industry-based learning opportunities and are actively involved in industry-based projects both in the classroom and beyond.

Career Preparation

In order to help students understand careers available to Sport Management majors, faculty in the Department of Sport Management designed activities to guide students from career exploration through career implementation. Examples of some of these include:

- Career Exploration in the freshman year is accomplished through a speaker series, an alumni panel and Sport Management Association activities
- Career Investigation in the sophomore year includes classroom assignments in SPMN 250 which look at opportunities in sport industry segments
- Career Determination in the junior year is accomplished using projects in SPMN 355 and SPMN 366
- Career Implementation in the senior year is addressed through instruction in networking and sport job search skills in SPMN 465 combined with internships and field experiences.

Career Opportunities

The sport management major is prepared to assume positions of responsibility in a wide variety of sport organizations in the private and public sectors. Graduates work in the following settings: professional sport, sport facility management, collegiate sport, recreation, sports clubs, health and fitness clubs, sports media, and the sporting goods industry.

Faculty

Professors: Sharianne Walker, Harvey Shrage

Associate Professor: Daniel Covell

Assistant Professors: Curt Hamakawa, James Masteralexis

Program Learning Goals

Having completed a major in Sport Management, the student will have the ability to:

1. Develop an ability to apply managerial competencies to sport organizations.
2. Understand internal and external factors that shape sport in a culture.
3. Achieve competency in sport marketing including fundamental aspects of sport products, markets, consumer research, sponsorship, and promotion.
4. Achieve competency in the finance of sport organizations including key elements of budgeting, accounting, public/private joint financing, and revenue development.
5. Achieve competency in legal aspects of sport including state/federal legislation, liability, risk management, contracts, and collective bargaining.
6. Achieve competency in the economics of sport including fundamental concepts of supply and demand, economic forecasting, and economic impact assessment.
7. Understand the governance and regulation of sport organizations.
8. Understand the key elements of ethical behavior in sport organizations including consideration of both personal and professional ethical systems in sport organization management.

Practicum, Internship, and Advanced Field Experience Options

Students majoring in sport management are afforded three different kinds of opportunities to apply their classroom learning to field experiences.

Sport Management majors may complete a three-credit Collegiate Athletics course which provides students with the opportunity to plan, organize, and lead various elements of sport-related programming which may include intercollegiate athletic teams, intramurals, recreation, and health and wellness. Students gain hands-on experience in game operations, event management, sport promotion, and athletic communications while working directly under the supervision of Western New England University athletic department staff. The course combines classroom instruction with on-site sport industry experience.

Sport Management majors who meet the University's academic requirements for internships (junior standing and grade point average of 2.5 or above overall and in the major) are eligible for the three-credit Internship in Sport Management.

Sport Management majors with a grade point average of 3.0 and above are eligible to apply for the Advanced Field Experience (SPMN 460/461) program. This program places students in semester-long, full-time intern positions within a sport organization. In place of the six credit hours of business electives, students in this program, earn 6 credit hours through a combination of the work they do at their placement site and a series of papers and presentations relating their field experience to the concepts and principles learned in their courses.

Course of Study

1. Core Requirements for All Business Majors and General University Requirements (80 credit hours) See p. 42.
—plus—
2. Required Sport Management, Management and Business Law Courses (18 credit hours)
SPMN 250 Managing Sport Organizations
SPMN 355 Sport Facilities Planning and Management

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SPMN 366	Sport Marketing
BL 360	Business Law for Sport Management
BL 388	Labor Management Relations in Sport
SPMN 465	Seminar in Sport Management
MAN 323	Human Resource Management
	—plus—

3. Other required courses (6 credit hours)

EC 340	The Economics of Sports
xxx	Sport in Society Elective*
	—plus—

4. Electives (15 credit hours)

SPMN 480	Internship (3 cr.)
	— or —
	Business Elective (3 cr.)
	Business Elective (3 cr.)
	Non-Business Electives (9 cr.)

*Course requirement filled with approved sport-related course offering, such as Sports Psychology, International Sport, Principles of Coaching, or Sports Journalism, for example.

Total credit hours required for graduation – 122.

Students earning less than a B- in ENGL 132 or ENGL 133 will be required to take ENGL 206, Business Writing in sophomore year

This major offers the option of 6 credits of advanced field experience (using the two business electives above).

Students must take 33 credit hours of course work in 300-400 level courses. All students must take 12 hours of upper level (300-400) courses in their major at Western New England University.

Non-Business electives must be selected in such a way to ensure that all “perspectives of understanding” requirements have been satisfied. (See p. 37)

Courses to be included in computing the 2.0 minimum average in the major are as follows:

All SPMN and BL courses, EC 340, Sport in Society Elective and BUS 450.

Suggested Sequence of Courses

Notes:

MR	Major Requirement
GUR	General University Requirement
BUSR	College of Business Requirement

Freshman Year		Credit Hours
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GUR/BUSR)	3
ENGL 132*	English Composition I (GUR)	3
MATH 111	Analysis for Business and Economics I (GUR/BUSR)	3
	— or —	
MATH 123	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	
HIST xxx	Historical Perspective (GUR)	3
MAN 101	Management and Organizational Behavior (BUSR)	
	— or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/>
		16
<i>Spring Semester</i>		
ENGL 133*	English Composition II (GUR)	3
MATH 112	Analysis for Business and Economics II (GUR/BUSR)	
	— or —	
MATH 124	Calculus I for Management, Life and Social Sciences (GUR/BUSR)	3
MAN 101	Management and Organizational Behavior (BUSR)	
	— or —	
BIS 102	Problem Solving with Business Tools (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	— or —	
SO 101	Introduction to Sociology (BUSR)	3
COMM 100	Principles of Communication (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GUR)	1
		<hr/>
		16

Sophomore Year		Credit Hours
<i>Fall Semester</i>		
AC 201	Financial Reporting (BUSR)	3
MK 200	Principles of Marketing (BUSR)	3

SUSTAINABILITY MAJOR

College of Arts and Sciences

General Information

This major is intended for students who wish to incorporate an understanding of sustainability and environmental issues with a professional career. The ability of future generations to address sustainability effectively and to meet the challenges they will face depends on what present students learn. At Western New England University, a degree in Sustainability prepares students not only for a career, but also for civic leadership and the ability to actively contribute to the development of sustainable communities. The nature of sustainability requires a multidisciplinary background, experience in working in teams, and adaptability to changing times and changing conditions. Our multidisciplinary approach combines technical skills with an understanding of social, economic, environmental, and political factors influencing our ability to create sustainable communities and sustainable development. In addition to the core curriculum, students also select a five-course concentration which prepares them for employment in public administration, international development, marketing and promotion, or communications.

Career Opportunities

Graduates in Sustainability are well prepared to enter a variety of fields, depending upon their concentration. The Public Administration concentration prepares students to work as administrators in newly emerging Sustainability Departments in municipal governments, universities and colleges, and corporations. The strong background in policy, government, and economics in this concentration offers students a real advantage in today's job market. A Communication concentration prepares students for public relations work in agencies or organizations which require a background understanding of sustainability and the environment. Alternatively, a student graduating in the Communication concentration could be employed as support staff for science research teams, or as communication coordinators for government agencies, non-profit organizations, or for-profit businesses which focus on environmental/sustainability issues. The International

Development concentration prepares students to work for sustainable development overseas, either with government agencies, non-profit organizations, or for-profit businesses. Finally, the Marketing and Management concentration provides a strong background for employment in government agencies, nonprofit organizations, and for-profit businesses where promotion of concepts and products is combined with an understanding of sustainability.

Faculty

This is a multidisciplinary major; faculty members come from different departments.

Director: Associate Professor B. Michaela Simpson

Program Objectives

Graduates of the Western New England University Sustainability Program will

1. Understand the links between environment, economics, and equality and their consequences for sustainability.
2. Have skills in using computer-aided modeling to design projects, geographical information systems (GIS) in environmental assessment, in obtaining and analyzing remote sensing (RS) and global positioning system (GPS) data, and in obtaining and analyzing data on watersheds, population, cultural resources, terrain, and land cover.
3. Understand the criteria for developing sustainable communities and maintaining sustainable resources
4. Have the necessary skills to participate as productive team members that solve problems related to sustainability at the interface of technology and community, and to incorporate safety, ethical, professional, and societal concerns into their work.
5. Be actively involved in finding solutions for developing sustainable communities.

General University and College Requirements

See General University Requirements on p. 36 and College of Arts and Sciences Requirements, p. 42.

Course of Study

- Required Sustainability major courses are (31 credit hours)

SUS 101	Introduction to Sustainability
SUS 220	Computer-aided Modeling and Analysis
SUS 230	Business and the Global Environment
SUS 236	Global Warming
SUS 305	Environmental Assessment
SUS 320	Electrical Power Systems
SUS 373	Population, Values, and Technology
SUS 405	Legal Aspects of Sustainability
SUS 425	Senior Design Project I
SUS 440	Senior Design Project II
- Required major core courses are (21 credits)

BIO 153	Principles of Environmental Science
POSC 102	American National Government
MATH 120	Introductory Statistics for Arts and Sciences
COMM 100	Principles of Communications
EC 274	Environmental Economics
PH 241	Philosophy of the Environment
POSC 342	Environmental Politics
- Student must select a Concentration (15 credits) from the following

Sustainability and International Development

POSC 101	Introduction to Contemporary Global Issues
POSC 203	International Relations
POSC 310	Politics of Developing Societies
POSC 340	International Law and Organization
EC 321	Economic Development

Sustainability and Public Administration

POSC 205	Public Administration
POSC 210	State Politics in America
POSC 218	Public Policy in America
POSC 338	Challenges in Local Government Management
EC 355	Public Finance

Sustainability and Communication

COMM 102	Public Speaking
COMM 205	Mass Communication
COMM 285	Introduction to Public Relations
COMM 320	Small Group Communication
COMM 340	Business Communication

Sustainability Management and Marketing

MAN 101	Principles of Management
MK 200	Principles of Marketing
MAN 225	Sustainable Enterprise Management
MAN 240	Business and Society
MK 317	Promotional Strategy

- A Student is required to complete a total of 30 credits in 300 or 400-level courses. This will require between one and three elective courses beyond the major and concentration courses.
- Other required courses outside sustainability (41 credit hours).

LA 100	First Year Seminar
SO 101	Introduction to Sociology
CHEM 101	Modern Chemistry
MATH 1xx	Mathematics Requirement
EC 111	Principles of Economics I
ENGL 132	English Composition I
ENGL 133	English Composition II
HIST xxx	History Requirement
CS 13x	Computer Competence
WIC 2xx	Writing Intensive course (A&SR)
CUL xxx	Elements of Culture
ARTS xxx	Aesthetic Perspective
ILP xxx	Integrated Liberal and Professional
WIC 3xx	Writing Intensive course (A&SR)
PEHR xxx	Personal Health and Wellness
PEHR xxx	Lifetime Activity Series

Suggested Sequence of Courses

Notes	
*	Is a prerequisite
**	Has a prerequisite
¹	SUS majors may not use course for requirement
ILP	Major Requirement
MR	General University Requirement
GUR	College of Arts and Sciences Requirement

Spring Semester

EC 111*	Principles of Economics I (GUR)	3
GEN xxx	General Elective	3
SUS 230 ¹	Business and Global Environment (MR)	3
BIO 153**	Principles of Environmental Science (GUR, MR)	3
SUS 220**	Computer-aided Modeling and Analysis (MR)	3

15**Sustainability: International Development****Freshman Year Credit Hours***Fall Semester*

ENGL 132*	English Composition I (GUR)	3
MATH 1xx	Mathematical Analysis (GUR)	3
CS 13x	Computer Competence (GUR)	3
HIST XXX	Historical Perspective (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15

Spring Semester

ENGL 133**	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR)	3
POSC 102*	American National Government (MR)	3
SUS 101	Introduction to Sustainability (MR)	3
GEN xxx	General Elective	3
PEHR153-199	Lifetime Activities Series (GUR)	1
		<hr/> 16

Sophomore Year Credit Hours*Fall Semester*

COMM 100	Principles of Communication (MR)	3
CHEM 101*	Modern Chemistry (MR&GUR)	3
SO 101*	Introduction to Sociology (GUR/MR)	3
POSC 101*	Introduction to Contemporary Global Issues (MR)	3
SUS 236* ¹	Global Warming (MR)	3

Junior Year Credit Hours*Fall Semester*

CUL xxx	Cultural Studies Perspective (GUR)	3
PH 241	Philosophy of the Environment (GUR,MR)	3
EC 321**	Economic Development (MR)	3
	- or -	
POSC 310**	Politics of Developing Societies (MR)	3
POSC 203	International Relations (MR)	3
SUS 305**	Environmental Assessment (MR)	4
		<hr/> 16

Spring Semester

EC 274**	Environmental Economics (MR)	3
	- or -	
POSC 340**	International Law and Organizations (MR)	3
GEN xxx	General Elective	3
POSC 342**	Environmental Politics (MR)	3
SUS 373**	Population, Technology, and Values (MR)	3
SUS 320**	Electrical Power Systems (MR)	3
		<hr/> 15

Senior Year Credit Hours*Fall Semester*

WIC 2xx	Writing Intensive course (A&SR)	3
GEN xxx	General Elective	3
POSC 310**	Politics of Developing Societies (MR)	3
	- or -	
EC 321**	Economic Development (MR)	3
SUS 405**	Legal Aspects of Sustainability (MR)	3

SUS 425**	Senior Design Project I (MR)	3
		<hr/> 15
<i>Spring Semester</i>		
ART xxx	Aesthetic Perspective (GUR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
POSC 340**	International Law and Organizations (MR)	3
	- or -	
EC 274**	Environmental Economics (MR)	3
ILP xxx	Integrated Liberal and Professional (GUR)	3
SUS 440**	Senior Design Project II (MR)	3
		<hr/> 15

Sustainability: Public Administration A

Freshman Year Credit Hours

<i>Fall Semester</i>		
ENGL 132*	English Composition I (GUR)	3
MATH 1xx	Mathematical Analysis (GUR)	3
CS 13x	Computer Competence (GUR)	3
HIST XXX	Historical Perspective (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15

<i>Spring Semester</i>		
ENGL 133**	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR)	3
POSC 102*	American National Government (MR)	3
SUS 101	Introduction to Sustainability (MR)	3
GEN xxx	General Elective	3
PEHR153-199	Lifetime Activities Series (GUR)	1
		<hr/> 16

Sophomore Year Credit Hours

<i>Fall Semester</i>		
COMM 100*	Principles of Communication (MR)	3
CHEM 101*	Modern Chemistry (MR&GUR)	3
SO 101*	Introduction to Sociology (GURMR)	3
POSC 205*	Public Administration (GUR, MR)	3
SUS 236* ¹	Global Warming (MR)	3
		<hr/> 15
<i>Spring Semester</i>		
EC 111*	Principles of Economics I (GUR)	3
POSC 218*	Public Policy in America (MR)	3
SUS 230 ¹	Business and Global Environment (MR)	3
BIO 153**	Principles of Environmental Science (GUR, MR)	3
SUS 220**	Computer-aided Modeling and Analysis (MR)	3
		<hr/> 15

Junior Year Credit Hours

<i>Fall Semester</i>		
CUL xxx	Cultural Studies Perspective (GUR)	3
EC 274**	Environmental Economics (MR)	3
PH 241	Philosophy of the Environment (MR)	3
WIC 2xx	Writing Intensive course (A&SR)	3
SUS 305**	Environmental Assessment (MR)	4
		<hr/> 16

<i>Spring Semester</i>		
EC 112*	Principles of Economics II (MR)	3
GEN xxx	General Elective	3
POSC 342**	Environmental Politics (MR)	3
SUS 373**	Population, Technology, and Values (MR)	3
SUS 320**	Electrical Power Systems (MR)	3
		<hr/> 15

Senior Year Credit Hours

<i>Fall Semester</i>		
GEN xxx	General Elective	3

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ILP xxx	Integrated Liberal and Professional (GUR)	3
POSC 210**	State Politics in America (MR)	3
SUS 405**	Legal Aspects of Sustainability (MR)	3
SUS 425**	Senior Design Project I (MR)	3
		15

Spring Semester

ART xxx	Aesthetic Perspective (GUR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
EC 355**	Public Finance (MR)	3
POSC 338**	Challenges in Local Government Management (MR)	3
SUS 440**	Senior Design Project II (MR)	3
		15

Sustainability: Public Administration B

Freshman Year

Credit Hours

Fall Semester

ENGL 132*	English Composition I (GUR)	3
MATH 1xx	Mathematical Analysis (GUR)	3
CS 13x	Computer Competence (GUR)	3
HIST XXX	Historical Perspective (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		15

Spring Semester

ENGL 133**	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR)	3
POSC 102*	American National Government (MR)	3
SUS 101	Introduction to Sustainability (MR)	3
GEN xxx	General Elective	3
PEHR153-199	Lifetime Activities Series (GUR)	1
		16

Sophomore Year

Credit Hours

Fall Semester

COMM 100*	Principles of Communication (MR)	3
CHEM 101*	Modern Chemistry (MR&GUR)	3
SO 101*	Introduction to Sociology (GUR, A&SR, MR)	3
GEN xxx	General Elective	3
SUS 236* ¹	Global Warming (MR)	3
		15

Spring Semester

EC 111*	Principles of Economics I (GUR)	3
WIC 2xx	Writing Intensive course (A&SR)	3
SUS 230 ¹	Business and Global Environment (MR)	3
BIO 153**	Principles of Environmental Science (GUR, MR)	3
SUS 220**	Computer-aided Modeling and Analysis (MR)	3
		15

Junior Year

Credit Hours

Fall Semester

POSC 210**	State Politics in America (MR)	3
EC 274**	Environmental Economics (MR)	3
PH 241	Philosophy of the Environment (MR)	3
POSC 205*	Public Administration (GUR, MR)	3
SUS 305**	Environmental Assessment (MR)	4
		16

Spring Semester

EC 112*	Principles of Economics II (MR)	3
POSC 218*	Public Policy in America (MR)	3
POSC 342**	Environmental Politics (MR)	3
SUS 373**	Population, Technology, and Values (MR)	3
SUS 320**	Electrical Power Systems (MR)	3
		15

Senior Year

Credit Hours

Fall Semester

WIC 3xx	Writing Intensive course (A&SR)	3
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CUL xxx	Cultural Studies Perspective (GUR)	3
POSC 338**	Challenges in Local Government Management (MR)	3
SUS 405**	Legal Aspects of Sustainability (MR)	3
SUS 425**	Senior Design Project I (MR)	3
		<hr/> 15

Spring Semester

ART xxx	Aesthetic Perspective (GUR)	3
GEN xxx	General Elective	3
EC 355**	Public Finance (MR)	3
ILP xxx	Integrated Liberal and Professional (GUR)	3
SUS 440**	Senior Design Project II (MR)	3
		<hr/> 15

Sustainability: Communication**Freshman Year** **Credit Hours***Fall Semester*

ENGL 132*	English Composition I (GUR)	3
MATH 1xx	Mathematical Analysis (GUR)	3
CS 13x	Computer Competence (GUR)	3
HIST XXX	Historical Perspective (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/> 15

Spring Semester

ENGL 133**	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR)	3
POSC 102*	American National Government (MR)	3
SUS 101	Introduction to Sustainability (MR)	3
GEN xxx	General Elective	3
PEHR153-199	Lifetime Activities Series (GUR)	1
		<hr/> 16

Sophomore Year **Credit Hours***Fall Semester*

COMM 100*	Principles of Communication (MR)	3
CHEM 101*	Modern Chemistry (MR&GUR)	3
SO 101*	Introduction to Sociology (GUR/MR)	3
PH 241	Philosophy of the Environment (GUR, MR)	3
SUS 236*1	Global Warming (MR)	3
		<hr/> 15

Spring Semester

EC 111*	Principles of Economics I (GUR)	3
COMM 102	Public Speaking (MR)	3
SUS 230 ¹	Business and Global Environment (MR)	3
BIO 153**	Principles of Environmental Science (GUR, MR)	3
SUS 220**	Computer-aided Modeling and Analysis (MR)	3
		<hr/> 15

Junior Year **Credit Hours***Fall Semester*

CUL xxx	Cultural Studies Perspective (GUR)	3
EC 274**	Environmental Economics (MR)	3
COMM 205	Mass Communication (MR)	3
WIC 2xx	Writing Intensive course (A&SR)	3
SUS 305**	Environmental Assessment (MR)	4
		<hr/> 16

Spring Semester

COMM 285**	Introduction to Public Relations (MR)	3
COMM 320**	Small Group Communication (MR)	3
POSC 342**	Environmental Politics (MR, A&SR)	3
SUS 373**	Population, Technology, and Values (MR)	3
SUS 320**	Electrical Power Systems (MR)	3
		<hr/> 15

Senior Year **Credit Hours***Fall Semester*

WIC 3xx	Writing Intensive course (A&SR)	3
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186 Undergraduate Academic Programs

GEN xxx	General Elective	3
COM 340**	Business Communication (MR)	3
SUS 405**	Legal Aspects of Sustainability (MR)	3
SUS 425**	Senior Design Project I (MR)	3
		<hr/>
		15
<i>Spring Semester</i>		
ART xxx	Aesthetic Perspective (GUR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
ILP xxx	Integrated Liberal and Professional (GUR)	3
SUS 440**	Senior Design Project II (MR)	3
		<hr/>
		15

Sustainability: Management and Marketing

Freshman Year

Credit Hours

<i>Fall Semester</i>		
ENGL 132*	English Composition I (GUR)	3
MATH 1xx	Mathematical Analysis (GUR)	3
CS 13x	Computer Competence (GUR)	3
HIST XXX	Historical Perspective (GUR)	3
LA 100	First Year Seminar (GUR)	2
PEHR 151	Personal Health and Wellness (GUR)	1
		<hr/>
		15

Spring Semester

ENGL 133**	English Composition II (GUR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GUR)	3
SUS 101	Introduction to Sustainability (MR)	3
POSC 102	American National Government (MR/GUR)	3
GEN xxx	General Elective	3
PEHR153-199	Lifetime Activities Series (GUR)	1
		<hr/>
		16

Sophomore Year

Credit Hours

<i>Fall Semester</i>		
COMM 100	Principles of Communication (MR)	3
CHEM 101*	Modern Chemistry (MR&GUR)	3
SO 101*	Introduction to Sociology (GUR/MR)	3
MAN 101	Management and Organizational Behavior (MR)	3
SUS 236*1	Global Warming (MR)	3
		<hr/>
		15
<i>Spring Semester</i>		
EC 111*	Principles of Economics I (GUR)	3
MK 200	Principles of Marketing (MR)	3
SUS 230 ¹	Business and Global Environment (MR)	3
BIO 153**	Principles of Environmental Science (GUR, MR)	3
SUS 220**	Computer-aided Modeling and Analysis (MR)	3
		<hr/>
		15

Junior Year

Credit Hours

<i>Fall Semester</i>		
CUL xxx	Cultural Studies Perspective (GUR)	3
PH 241	Philosophy and the Environment (GUR, MR)	3
EC 274**	Environmental Economics (MR)	3
MAN 240	Business and Society (MR)	3
SUS 305**	Environmental Assessment (MR)	4
		<hr/>
		16

Spring Semester

MAN 305	Managing for Sustainability (MR)	3
WIC 2xx	Writing Intensive course (A&SR)	3
POSC 342**	Environmental Politics (MR, A&SR)	3
SUS 373**	Population, Technology, and Values (MR)	3
SUS 320**	Electrical Power Systems (MR)	3
		<hr/>
		15

Senior Year		Credit Hours
<i>Fall Semester</i>		
ENGL 2xx	Literature Requirement	3
GEN xxx	General Elective	3
MK 317	Promotional Strategy (MR)	3
SUS 405**	Legal Aspects of Sustainability (MR)	3
SUS 425**	Senior Design Project I (MR)	3
		<hr/> 15
<i>Spring Semester</i>		
ART xxx	Aesthetic Perspective (GUR)	3
WIC 3xx	Writing Intensive course (A&SR)	3
ILP xxx	Integrated Liberal and Professional (GUR)	3
GEN xxx	General Elective	3
SUS 440**	Senior Design Project II (MR)	3
		<hr/> 15

DESCRIPTIONS OF MINOR PROGRAMS

Minors

In addition to the academic major, which all students must take, students have the option of electing a minor. To elect a minor or to obtain further information, students should consult the office of the dean of the College of Business for the following minors—international business, business, entrepreneurship and management studies—and the office of the dean of the College of Arts and Sciences for all others.

Requirements

A student must successfully complete all courses specified for the minor and attain a minimum cumulative GPA of 2.00 in the minor.

Additionally, the number of transfer credits that may be used to satisfy course requirements for a minor shall not exceed six credit hours.

African American Studies Minor

The minor requirement is 18 credit hours. The following three courses are required:

ENGL 223	African American Literature I
ENGL 224	African American Literature II
SO 216	American Culture and the Black Experience

(Other electives at the discretion of the Director)

And three courses from the following:

ENGL 341	Caribbean Writers
ENGL 345	Major African American Authors
ENGL 343	Literature of African and African Diaspora
COMM 326	Race, Gender, and Ethnicity in Media
CUL 210	Comparative Race Relations: U.S. and South Africa
HIST 260	History of Precolonial Africa
HIST 254	Civil War and Reconstruction

Art Minor

The minor requirement is 18 credit hours in Art. At least nine credit hours in studio art and six credit hours in Art History/Appreciation.

Athletic Coaching Minor

The minor requirement is 18 credit hours, as follows:

PEHR 201	Principles of Athletic Coaching
PEHR 202	Care and Prevention of Athletic Injuries
PSY 201	Developmental Psychology
PSY 321	Sports Psychology
PSY 313	Learning
	— or —
SPMN 450	Managing Intercollegiate Athletics
PEHR 480-481	Internship in Athletic Coaching

The athletic coaching minor will be offered through the College of Arts and Sciences and be directly administered through the Physical Education program. The minor is interdisciplinary in nature and draws from courses in physical education, psychology, and sport management. The minor provides a cohesive and meaningful academic program for students wishing to pursue the formal study of athletic coaching.

Biochemistry Minor

BIO 107/108	General Biology I and II
BIO 117/118	General Biology I and II Labs
BIO 203	Microbiology
CHEM 105/106	General Chemistry I and II
CHEM 209/210	Organic Chemistry I and II
CHEM 219/220	Organic Chemistry I and II Labs
CHEM 314	Biochemistry
CHEM 324	Biochemistry Lab

The Biochemistry Minor is open only to students who have completed one semester of physics (PHYS 103, PHYS 123 or PHYS 133) and one of the following courses: MATH 109, MATH 112, MATH 123 or MATH 133.

Note: This minor is not open to Biology or Chemistry students.

Biology Minor

The minor requirement is 19 credit hours, as follows:

BIO 107/108	General Biology I-II
BIO 117/118	General Biology I-II laboratory
BIO 201	Plant Biology
BIO 213	Ecology

BIO 15x Natural Science
 Perspective in Biology

Business Minor

The minor requirement is 18 credit hours, as follows:

AC 201	Financial Reporting
AC 202	Managerial Accounting
BIS 202	Introduction to Business Information Systems
FIN 214	Introduction to Finance
MAN 101	Management and Organizational Behavior
MK 200	Principles of Marketing

The business minor is not available to students whose major is within the College of Business.

Chemistry Minor

The minor requirement is 20 credit hours, as follows:

CHEM 105-106	General Chemistry I-II
CHEM 211	Analytical Methods
CHEM 221	Analytical Methods Laboratory
CHEM 209/210	Organic Chemistry I-II — and —
CHEM 219/220	Organic Chemistry Laboratory I-II*
	— or —
CHEM 317/318	Physical Chemistry I-II — and —
CHEM 327/328	Physical Chemistry Laboratory I-II*

The chemistry minor is open only to students who have completed one semester of college-level physics (PHYS 103 or PHYS 133) and one of the following mathematics courses: MATH 109, MATH 112, MATH 123, or MATH 133.

**These courses have prerequisites.*

Communication Minor

The minor requirement is 18 credit hours, as follows:

COMM 100	Principles of Communication
COMM 102	Public Speaking
COMM 340	Business Communication
COMM 320	Small Group Communication

Plus any two of the following courses:

JRNL 101	Journalism I
COMM 205	Mass Communication
COMM 315	Language in Communication

COMM 321	Nonverbal Communication
COMM 324	Media Industries, Government and Society
COMM 326	Race, Gender, and Ethnicity in the Media
COMM 348	Intercultural Communication

Computer Forensics Minor

General Information

1. The rate of computer crime is increasing at a phenomenal rate and is receiving heightened attention by businesses and the media. There is a corresponding need for computing professionals who are also trained in the field of criminal justice. This minor provides students with a combination of criminal justice and computing skills to enable them to investigate computer crimes. The requirements for a minor in Computer Forensics are 18 credit hours as follows: Required CS/IT courses (10 credit hours)

CS/IT 101	Introduction to Computing
CS 300	Computer Forensics – Tools and Processes
CS 310	Computer Crime Scene Investigation
2. Required CJ courses (9 credit hours)

CJ 101	Introduction to Criminal Justice
CJ 231	Criminal Investigation
CJ 348	Introduction to Cyber Crimes

Computer Science Minor

The minor requirement is 22 credit hours, as follows:

CS 101	Introduction to Computing
CS 102	Introduction to Programming
CS 201	Data Structures and Algorithms I
CS 202	Data Structures and Algorithms II
MATH 251	Advanced Discrete Structures

Plus one 300 or 400 level CS course.

Criminal Justice Minor

The minor requirement is 18 credit hours, as follows:

CJ 101	Introduction to Criminal Justice
CJ 210	Criminology

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CJ 211	Corrections
CJ 218	Police and Society
CJ 231	Criminal Investigation
CJ 240	Criminal Law and Procedure

A student must take CJ 101 and CJ 210 (in any order) prior to taking the remaining courses.

Economics Minor

The minor requirement is 18 credit hours, as follows:

EC 111	Principles of Economics I
EC 112	Principles of Economics II
EC 215	Microeconomics
	— or —
EC 311	Money and Banking
EC 216	Microeconomics
	— or —
ILP 317	Management Issues for Professionals

Plus six additional credits at 200 level or higher, three of which could be ILP 230.

Education Minor

The minor requirement is 18 credit hours, as follows.

PSY 101	Introduction to Psychology
PSY 201	Developmental Psychology
PSY 304	Educational Psychology
ED 301	Principles and Problems of Education

Plus any of the two following education or psychology courses:

ED 333	Independent Study in Education
ED 350	Teaching of Elementary Reading and Language Arts
ED 375	Elementary Curriculum and Methods
PSY 307	Use of Psychological Tests
PSY 313	Learning
PSY 317	Psychology of the Exceptional Person

English Minor

The minor requirement is 18 credit hours, as follows:

ENGL 231	British Literature I
	— or —
ENGL 232	British Literature II
ENGL 251	American Literature I
	— or —
ENGL 252	American Literature II

ENGL 314	Shakespeare: The Plays and Poems
	— or —
ENGL 315	Shakespeare: The Tragedies
	— or —
ENGL 316	Shakespeare: The Comedies and Histories

Plus nine additional credit hours at the 300 or 400 level.

Enterprise Resource Planning Minor with SAP

The minor requirement is 31 credit hours as follows:

BIS 202	Introduction to Business Information Systems
BIS 220	Introduction to Business Statistics (or MATH 120—Introductory Statistics for Arts and Sciences)
BIS 312	Quality and Operations Management w/SAP
BUS 312	Integrated Business Operations w/SAP
BIS 412	Business Intelligence
MAN 370	Project Management
BIX 3xx	Approved Elective

The minor is not available to students majoring in BIS.

Entrepreneurship Minor

The minor requirement is 18 credits hours, as follows:

Required Courses (9 credits):	
AC 201	Financial Reporting
MK 200	Principles of Marketing
MAN 251	Entrepreneurship and Innovation
Elective Courses (9 credits):	
MK 260	Marketing for Entrepreneurs
BUS 423	Product Development and Innovation
MK 326	Venture Feasibility
FIN 330	Financing Entrepreneurial Ventures
MAN 380	Global Entrepreneurship

Film Studies Minor

The minor requirement is 18 credit hours as follows:

The following two courses are required:

FILM 102	The History of Film
FILM 103	The Art of Film

To fulfill the minor, students must take four courses from the following:

FILM 201	Studies in Mainstream Film Genres
FILM 202	Mass Media in Film
FILM 210	Mass Media in Film
FILM 212	Women and Film
FILM 290	Special Topics in Film
FILM 302	Screenwriting
FILM 312	International Cinema
FILM 320	Introduction to Cinema Production
FILM 340	Director's Signature
FILM 390	Special Topics in Film

Forensic Science Minor

The minor requirement is 29 credit hours as follows:

BIO 107	General Biology
BIO 117	General Biology I Laboratory
CHEM 105/106	General Chemistry I-II
CHEM 209/210	Organic Chemistry I-II
CHEM 219/220	Organic Chemistry Laboratory I-II
CJ 101	Introduction to Criminal Justice
FS 240	Scientific Evidence
FS 201	Introduction to Forensic Science

Note: This minor is not open to Forensic Chemistry or Forensic Biology majors.

History Minor

Two of the following courses:

HIST 105	World Civilization I
HIST 106	World Civilization II
HIST 111	United States History to 1877
HIST 112	United States History, 1878 to the Present

Nine credit hours of 300 or 400 level history courses.

Plus three additional credit hours of history.

Within these course requirements, a student must take at least three credit hours each in non-Western, European, and American history.

Information Technology Minor

The minor requirement is 19 credit hours, as follows:

1. Required IT courses (13 credit hours)

IT 101	Introduction to Computing
IT 230	Introduction to Operating Systems and Script Development
IT 250/BIS 413	Data Communications and Networks
IT 300/BIS 321	Database Management Systems
2. In addition to the required above four courses, students must complete two courses from the following courses.

IT 310	System Operation and Administration
IT 330	Network Security Concepts
IT 340	Wireless Networking Concepts
*IT 350	Web Systems Development
IT 360	Network Management and Operations
IT 410	Advanced Topics in System Administration
IT 430	Advanced Topics in Network Security
IT 440	Advanced Topics in Wireless Networking
*IT 450	Advanced Topics in Web Design and Development
IT 460	Advanced Topics in Network Administration

** These two courses have additional prerequisites of IT 102 and IT 240.*

International Business Minor

The interdisciplinary International Business minor is designed to assist students in developing knowledge and skills appropriate for entry into careers involving international business activity.

The minor requires completion of five courses (15 credit hours), as follows:

ILP 230	Business and the Global Environment
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Plus two of the following:

MAN 311	International Management
FIN 322	International Finance
MK 311	Multinational Marketing

Plus two of the following:

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(Students who do not take FIN 322 must select at least one of the asterisked courses below.)

BUS 315/316	International Practicum Seminar — or —
CUL 315/316	International Practicum
COMM 348	Intercultural Communication
*EC 371	International Monetary Economics
*EC 372	International Trade
POSC 203	International Relations
POSC 340	International Law

Students must meet any prerequisites required for the above courses.

Participation in an International Exchange/Study Abroad program and taking language courses are highly recommended. Some of the above courses may be taken during an exchange/study abroad program with prior approval.

International Studies Minor

The minor requirement consists of seven courses (21 credit hours), as follows:

INST 101/ POSC 101	Introduction to Contemporary Global Issues
POSC 203	International Relations — plus either —
HIST 106	World Civilization II — or —
SO 310	Cultural Anthropology in the 21st Century

Plus one of the following:

COMM 205	Mass Communication
ENGL 215	World Literature II
PH 308	Environmental Ethics
PH 320	Western Religions
PH 321	Eastern Religions

Plus any three courses from the international studies curriculum list at the 300-level or above.

Latin American Studies Minor

The minor requirement is 18 credit hours, as follows:

SPAN 101 and SPAN 102	— or —
SPAN 203 and SPAN 204	— or —
CUL 250	Latin American Civilization

ENGL 253	Love, Death, and Power in Twentieth Century Spanish American Literature
HIST 270	Colonial Latin American History — or —
HIST 271	Modern Latin American History
SO 211	Sociology of Minority Groups — or —
SO 325	Introduction to the Mayan World

A demonstrated proficiency in Spanish or Portuguese may allow one to waive certain language requirements and to add courses in Latin American government or history. These would require the approval of the dean.

Management Minor

The minor requirement is 18 credit hours as follows:

Required courses (nine credit hours):

MAN 101	Management and Organizational Behavior
MAN 201	Interpersonal Skills for Managing
MAN 323	Human Resource Management

Plus nine credit hours of 300 or 400 level management courses.

The management minor is not available to students who are majoring in management, sport management, or arts and entertainment management.

Mathematical Sciences Minor

The minor requirement is 18 or 20 credit hours, as follows:

MATH 123/124	Calculus for Management, Life, and Social Sciences I & II — or —
MATH 133/134	Calculus I-II
MATH 251	Advanced Discrete Mathematics — or —
MATH 281	Foundations of Mathematics I

Three additional courses numbered 282 or above, except for MATH 350, at least one of which must be:

MATH 418	Introduction to Modern Algebra — or —
MATH 421	Real Analysis — or —
MATH 412	Topology

Media Minor

The minor requirement is 18 credit hours, as follows:

COMM 100	Principles of Communication
COMM 205	Mass Communication
COMM 241	Video Production I
COMM 250	Video Production II

Plus any two of the following courses:

JRNL 101	Journalism I
COMM 251	Television Broadcasting I
COMM 285	Introduction to Public Relations
COMM 324	Media Industries, Government, and Society
COMM 352	TV Broadcasting II

Music Minor

21 credit hours

MUS 101	Music Appreciation
MUS 201	Basic Music Theory and Composition

Six semester hours in performance selected from:

MUS 141/142	College Singers
MUS 151/152	Campus Chorus
MUS 161/162	Pep Band
MUS 181/182	Concert Band
MUS 110	Beginning Guitar
MUS 210	Intermediate Guitar

Plus nine semester hours of MUS courses at the 200 or 300 level.

Philosophy Minor

The minor requirement is 18 credit hours consisting of any six philosophy courses.

Political Science Minor

The minor requirement is 18 credit hours as follows:

POSC 102	American National Government
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Plus 15 credit hours of 200, 300, or 400 level political science courses.

Within these course requirements, a student must take at least three credit hours in American politics, international relations, comparative government, and political thought.

Psychology Minor

The minor requirement is PSY 101 plus 15 additional credit hours in psychology. Note: internships, independent study, and undergraduate research may not be used to fulfill these requirements.

Public Administration Minor

The minor requirement is 18 credit hours selected from the courses listed below:

Required courses (nine hours):

POSC 102	American National Government
POSC 205	Public Administration
POSC 338	Public Management in Local Government

Plus any three of the following (nine hours):

POSC 210	State Politics in America
POSC 322	The U.S. Presidency
POSC 325	Constitutional Law
POSC 218	Public Policy in America
POSC 338	Challenges in Local Government Management
POSC 340	International Law and Organizations
POSC 350	American Foreign Policy
EC 351	Economics and Government
EC 355	Public Finance
EC 361	Urban Economics
SO 302	Industrial and Post Industrial Society
SO 305	Sociology of Urban Life

Quantitative Economics Minor

The minor requirement is 18 credit hours as follows:

MATH 133	Calculus — or —
MATH 123	Calculus I for Management, Life, and Social Sciences
EC 117	Principles of Quantitative Economics
EC 215	Macroeconomics
EC 216	Microeconomics — or —

ILP 317	Management Issues for Professionals
EC 490	Seminar: Issues in Contemporary Economics

One other EC course at the 200 or 300 level

Social Work Minor

The minor requirement is a minimum of 19 credit hours, as follows:

PH 210	Ethics for Social Workers
SW 100	Introduction to Social Work
SW 216	Human Behavior and the Social Environment
SW 301	Social Work Interventive Methods I (four credits)
SW 320	The Dynamics of Oppression and Empowerment*
SW 321	Empowerment Practice with Underserved Populations

*Prerequisites for this course are SO 101, as well as junior standing.

Social Work Minor for Criminal Justice Majors

The minor requires the following courses:

SW 100	Introduction to Social Work
SW 204	Social Work and Criminal Justice
SW 216	Human Behavior in the Social Environment
SW 301	Social Work Interventive Methods I (four credits)
SW 302	Social Work Interventive Methods II** (Interviewing Skills)
SW 320	The Dynamics of Oppression and Empowerment*

*Prerequisites for this course are SO 101, as well as junior standing.

**SW 305 *The Helping Relationship* (two credits) may be taken as an extra course, as a corequisite with SW 302, but is not required.

Sociology Minor

The minor requirement is 18 credit hours, as follows:

SO 101 and five other sociology courses, four of which must be at the 300-level or above, and one of which must be a research methods course.

Spanish Minor

The minor requirement is 18 credit hours selected from the courses below:

Required four courses (12 hours):

SPAN 203	Intermediate Spanish I
SPAN 204	Intermediate Spanish II
SPAN 305	Advanced Conversational Spanish I
SPAN 306	Advanced Conversational Spanish II — Plus a choice of either — Love, Death, and Power in Twentieth Century Spanish American Literature — and —
ENGL 253	Latin American Civilization — or —
CUL 250	Elementary Spanish I — or —
SPAN 101	Spanish for Criminal Justice — or —
SPAN 130	Spanish for Social Services Elementary Spanish II
SPAN 140	
SPAN 102	

Sustainability Minor

The minor requirement is 18 hours, as follows:

Required courses

SUS 101*	Introduction to Sustainability
BIO 153*	Principles of Environmental Science
SUS 236	Global Warming

Plus three of the following courses:

EC 274*	Environmental Economics
POSC 342**	Environmental Politics
SUS 220**	Computer-aided Modeling and Analysis
SUS 373**	Population, Values, and Technology
SUS 305**	Environmental Assessment
SUS 320**	Electrical Power Systems
SUS 405**	Legal Aspects of Sustainability

Notes

* Is a prerequisite

** Has a prerequisite

Recommended courses for a policy-oriented minor in Sustainability.

EC 274	Environmental Economics
POSC 342	Environmental Politics
SUS 405	Legal Aspects of Sustainability

Recommended courses for a technology-oriented minor in Sustainability.

SUS 220	Computer-aided Modeling and Analysis
SUS 305	Environmental Assessment
SUS 320	Electrical Power Systems

Sustainability Management Minor

The Sustainability Management minor is open to any student at the University.

The requirement for the Sustainability Management minor is 18 credit hours as follows:

The following three courses:

MAN 101	Management and Organizational Behavior
MAN 240	Business and Society
MAN 305	Managing for Sustainability

Plus three of the following courses:

EC 274	Environmental Economics
ENVS 301	Waste Management
ILP 235	Global Sustainability Management
ILP 236	Global Warming
POSC 342	Environmental Politics
SUS 101	Introduction to Sustainability
SUS 373/SO 373	Population, Values, and Technology

Or, by permission of the Management Department chair, any course offered in the Colleges of Arts and Sciences, Business, or Engineering whose primary focus is on issues of sustainability.

Theatre Minor

The minor requirement is 18 credit hours in THTR courses. At least six credit hours must be taken in THTR 151-152 Stageless Players.

Women's Studies Minor

The minor requirement is 18 credit hours, chosen from the following:

EC 392	Women in the Economy
PSY 305	Psychology of Women
SW 383	Women's Issues
ENGL 358	Women in Literature
Independent Study*	Internship in a setting servicing women*

Or any other course whose primary content is focused on women*

**Permission for such course is required by the chair of the Social Work Department.*

Certificate Program in Chemistry

Recognizing the need for qualified workers trained in chemistry to fill positions in the chemical industry, and in other areas such as hospital and environmental laboratories highly dependent upon chemical technology, the University offers a Certificate in Chemistry. The certificate requires the completion of 20 credit hours in chemistry courses and, in addition, the prerequisites to these courses.

Certificate requirements are as follows:

CHEM 209-210	Organic Chemistry I-II
CHEM 219-220	Organic Chemistry Laboratory I-II
CHEM 211	Analytical Methods
CHEM 221	Analytical Methods Laboratory
CHEM 312	Instrumental Analysis
CHEM 322	Instrumental Analysis Laboratory
CHEM 314	Biochemistry
CHEM 324	Biochemistry Laboratory

Certificate Program in Communication

Recognizing that communication is a skill much needed today, the University offers a program that strengthens understanding, writing, and speaking. Completion of the program requires 18 credit hours (plus any prerequisites).

COMM 100	Principles of Communication
COMM 102	Public Speaking
COMM 320	Professional Communication
COMM 340	Business Communication

Plus two COMM courses at the 300 level

SAP Certificate

Complete three SAP University Alliance approved courses and receive a signed certificate of completion from SAP University Alliance. Select any three courses from: BIS 202, BUS 312, BIS 312 and BIS 412.

UNDERGRADUATE COURSE DESCRIPTIONS

In general, the number of each course is related to the level of the course. The 100 series indicates introductory courses and the higher numbers indicate courses of a more advanced nature. Courses in the 500- and 600-level series are restricted to graduate students. For further information about an academic area, consult the Dean of the college listed in parentheses.

AC Accounting

(College of Business)

AC 201 Financial Reporting

Prerequisite: MATH 115, 111, or 123 or 133. This course provides an introduction to the basic concepts and framework of financial accounting with an emphasis placed on the interpretation and use of the information contained in the primary financial statements. Key outcomes include an understanding of underlying accounting concepts and principles, the accounting information process, and the elements of the balance sheet, income statement, and the statement of cash flows. Offered fall and spring semesters.
3 cr.

AC 202 Managerial Accounting

Prerequisite: AC 201. This course provides an introduction to managerial accounting, with an emphasis on the planning, control, and decision-making functions of management. Key outcomes include an understanding of cost behavior, product costing, cost-volume-profit analysis, budgeting, and identification of relevant costs for decision-making purposes. Offered fall and spring semesters.
3 cr.

AC 305 Financial Reporting II

Prerequisite: AC 201, and BIS 202 or concurrent. This second course in financial reporting is the first of a three-course sequence that offers an in-depth examination of the financial reporting process. Emphasis is placed on the application of theory to the preparation and use of financial accounting information. Key outcomes include an understanding of the flow of information through the accounting cycle and the measurement and reporting requirements for cash, marketable securities, receivables, inventories, plant and equipment, and intangible assets. Offered in the fall semester.
3 cr.

AC 306 Financial Reporting III

Prerequisite: Grade of C- or better in AC 305. This is the third in a three-course sequence offering an in-depth examination of the financial reporting process. Similar to AC 305, emphasis is placed on the application of theory to the preparation and use of financial accounting information. Key outcomes include an understanding of the measurement and reporting requirements for current liabilities, bonds, leases, pensions, current and deferred income taxes, owners' equity, and earnings per share. Offered in the spring semester.
3 cr.

AC 309 Cost Accounting

Prerequisite: AC 202. This course offers an in-depth examination of the basic principles of cost accounting with an emphasis on profit determination, planning, managerial control, and decision making. Key outcomes include an understanding of cost accumulation systems for both manufacturing and service organizations, budgeting processes, use of standard costing, determination of cost functions, and application of cost-volume-profit analysis to real-world business problems. Offered fall and spring semesters.
3 cr.

AC 330 Accounting Information Systems

Prerequisite: AC 305 or permission of the instructor. This course is designed to examine the relationship between a company's information system and its accounting information system (AIS). Key outcomes include an understanding of database management systems, the objectives and procedures of internal control, typical business documents and reports, proper system documentation, the general ledger and business reporting, and systems development. Offered fall and spring semesters.
3 cr.

AC 333-334 Independent Study in Accounting

See "Independent Study" on p. 30.
1-3 cr.

AC 375 Nonprofit Board Field Experience I

Prerequisite: Permission of instructor and junior standing in the College of Business. This is the first semester of a two semester course sequence. Students must successfully complete AC 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of

directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the first semester students will attend board meetings and become oriented to the organization.

1 cr.

AC 376 Nonprofit Board Field Experience II

Prerequisite: AC 375 and permission of instructor and junior standing in the Business College.

This is the second semester of a two semester course sequence. Students must successfully complete AC 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the second semester students become involved with a member of the board in a project area.

2 cr.

AC 390 Special Topics in Accounting

This is a study of advanced topics in accounting of special interest to accounting majors, but not carried in the catalog on a regular basis. The course may be repeated for credit if the topic varies.

3 cr.

AC 407 Financial Reporting IV

Prerequisite: AC 306. This course is the third in a three-course sequence offering an in-depth examination of financial reporting issues. The focus of this course is on accounting principles and practice related to business combinations as well as multinational accounting. Key outcomes include an understanding of intercorporate investments, business combinations, consolidated financial statements, intercompany transfers of assets, foreign currency transactions, and translation of foreign entity financial statements. Offered fall and spring semesters.

3 cr.

AC 413 Fundamental Concepts of Taxation

Prerequisite: AC 202. This course is an introduction to the fundamental concepts of the federal income tax system, with an emphasis on individual and business situations. Key outcomes include an understanding of income recognition and deferral, the determination

of tax liability, and tax planning strategies. Offered fall and spring semesters.

3 cr.

AC 419 Auditing and Assurance Services

Prerequisite: AC 305 or permission of instructor. This course introduces students to the role of financial statement audits and other assurance services in enhancing the relevance and reliability of information. Key outcomes include basic knowledge of risk analysis, internal controls, information technology, sampling, legal liability, and professional conduct. Offered in the spring semester.

3 cr.

AC 480-481 Internship in Accounting

See "Internships" on p. 31.

3 cr.

AEM Arts and Entertainment Management

AEM 250 Managing Arts and Entertainment Organizations

Prerequisite: MAN 101. This course introduces the field of arts and entertainment management with a focus on the essential nature of creative organizations and projects, including those that are nonprofit. Key learning outcomes focus on an understanding and recognition of the history and evolution of the arts and entertainment industry; the internal culture and structure of creative organizations; external influences on the arts and entertainment industry; managerial, financial, legal and marketing principles of arts and entertainment organizations; vocabulary and themes unique to arts and entertainment concerns; research skills including data collection and analysis; and arts and entertainment career exploration and investigation.

3 cr.

AEM 350 Arts and Entertainment Practicum

Prerequisite: BIS 202, AEM 250, and Arts and Entertainment Management major only. Open to Arts and Entertainment Management students only. This course focuses on the management process involved in producing events within the arts and entertainment domain. During the course, students will produce an arts and entertainment event on campus or in the local community. Key learning outcomes focus on the role that managers fulfill in the project management process including establishing project feasibility, planning, organizing, and leading artists and other technical personnel, scheduling, budgeting and post-event

assessment, and the use of technology to support event management processes.

3 cr.

AEM 355 Arts and Entertainment Venue Operations

Prerequisite: AEM 250. The course provides an overview of arts and entertainment venue operations. Key learning outcomes focus on understanding managerial issues related to various arts/entertainment facilities including museums and performance venues, venue finance, project feasibility, economic impact of venues and events, outsourcing of operational services, application of management principles including budgeting, promotion, public relations, security and risk management, event planning, and operations.

3 cr.

AEM 465 Seminar in Arts and Entertainment Management

Prerequisite: AEM 250, BL 350, AEM 350, AEM 355, EC 350. This capstone course examines contemporary issues and challenges for managers in the arts and entertainment industry. Key learning outcomes focus on understanding environmental forces shaping current practices in arts and entertainment organizations, maximization of arts and entertainment organization revenue streams including fundraising, grant writing, and membership development. and the nature and purpose of boards of directors. Strategies for arts and entertainment industry career determination and implementation are emphasized.

3 cr.

Art

(College of Arts and Sciences)

(All ART courses satisfy Aesthetic Perspective requirement)

ART 101 Art Appreciation

An introduction to the “Art” of appreciating art, this course is designed to help students feel more confident viewing and discussing the visual arts. In addition to traditional learning tools, students will be challenged by hands-on creative projects, two museum visits, DVD viewings, oral presentations, Western New England University art gallery visits, and ongoing online discussion questions. Exploring the various ways art has been created from pre-history up to the present will assist students in engaging their minds

and imaginations to better understand the multiplicity of art movements that comprise the history of Western visual arts. Offered every semester.

3 cr.

ART 105 Drawing I

This course is an introduction to drawing using a variety of mediums that could include pencil, charcoal, conte crayon, ink, and oil pastel. Since drawing entails direct communication from the eye to the hand, students work mainly from life, such as nature, the model and/or still life, as well as possible assignments using the imagination. The primary focus will be on building drawing skills with an emphasis on composition, so that volume, proportion, placement, value, and developing a strong inner color sense will be realized. Keeping a sketchbook during the semester and a museum visit may be offered in some courses. Offered every semester.

3 cr. Art supply fee \$25.

ART 116 Life Painting with Volumes of Color

This course focuses on capturing light and volume through relationships of color in still lifes and landscape painting. Offered every year.

3 cr. Art supply fee \$25

ART 118 Introduction to Jewelry Making

This course will provide students with the fundamental knowledge of jewelry-making through multiple hands-on projects. This course will provide the skills of basic beading techniques with various materials into wearable pieces of art; necklaces, earrings, and bracelets.

3 cr. Art supply fee \$25.

ART 120 Art of Hand Papermaking I

Students learn about preparation of the pulp; dip, pour, and paint methods of sheet formation; and pressing and dyeing of formed sheets. Students will explore decorative sheet formation techniques such as laminating, embedding, and surface embellishment. Finally, students will learn ways to use this paper as a medium for constructing works in paper, such as collage assemblage, casting, weaving, or 2- and 3-D cards.

3 cr. Art supply fee \$25.

ART 201 Survey of Western Art I

A historical survey of Western art and architecture from ancient times to the beginning of the Renaissance. Offered every other year.

3 cr.

ART 202 Survey of Western Art II

A historical survey of Western art and architecture from the middle of the Renaissance to the twentieth century. Offered every other year.

3 cr.

ART 212 London through the Ages

This three-week summer course taught in London in conjunction with CUL 270 covers the history and culture of the city from the Roman period to the present day, and features extensive exploration of the city and its historic sites. Note: This course is also equivalent to HIST 212 and satisfies the aesthetic perspective or historical perspective requirements.

3 cr.

ART 215 Intermediate Drawing

Prerequisite: ART 105. This is a rigorous course that enables students to develop their personal vision further, and to explore the medium of drawing more deeply, based on the foundation acquired in ART 105. Emphasis is on expanding the drawing skills through confrontation with the formal visual problems, using imagination, new ideas, new materials, and new techniques. One goal is to bring out the expressive qualities in each student. Offered every spring.

3 cr. Art supply fee \$25.

ART 218 Paper as Fiber Art

This course focuses on the exploration of paper as a creative medium in the world of fiber art. The history of paper as fiber art is covered. The versatility and potential of paper as art is demonstrated through the use of paper and paper pulp. Techniques such as alteration and collage design, texturizing paper, surface decoration of paper, book binding, and dipped sculpture will be covered so students can then use these techniques to design other works: Sculpture, altered art, collage, illumination, and book art, for example. Fiber art is presented to and explored by students as a major and exciting movement in contemporary art. This course will satisfy the aesthetic perspectives requirement of the GUR.

3 cr. Art supply fee \$25.

ART 220 Art of Hand Papermaking II

Prerequisites: ART 120. This intermediate course focuses on sheet formation using plant fibers instead of recycled paper. The course will also cover testing paper for permanence, additives to the pulp (for sizing and permanence), mold making, coloring agents surface decoration, simple bookbinding, and watermarks. Finally, students will use this paper as a medium for constructing works

of paper art: Collage, assemblage, personal watermarks, casting from self made molds, sewn and accordion books, and altered books are some of the possibilities. Offered every year.

3 cr. Art supply fee \$25.

ART 225 Impressionism

This course focuses on the development of Impressionism in art, a departure from realism. Representative figures, French, American, and British, will be studied, such as Monet and Renoir. Some attention will be paid both to the technique and philosophy of Impressionism, as well as to its cultural background. Offered in alternate years.

3 cr.

ART 240 2-D Art

This is a foundation level studio art course that explores different methods of solving two-dimensional visual problems based on the elements and principles of design. Hands-on projects involving a variety of mediums and materials encourage students to creatively strengthen their problem-solving skills while building communication skills through written and group critiques as well as a paper based on a museum visit. This course will satisfy the ethical perspectives requirement of the GUR.

3 cr. Art supply fee \$25.

ART 250 3-D Art

This is a foundation level studio art course that explores the manipulation of various 2-D and 3-D materials to create 3-D artworks through use of the Elements and Principles of Design. There may also be a museum visit, as well as visits to WNEC's art gallery to view original 3-D artwork in a public, professional setting. Students will test and strengthen their problem-solving and communication skills through a series of hands on projects involving wire, plaster casting, found objects, and multiple recyclables, as well as written and group critiques. 3 cr. Art supply fee \$25.

ART 290 Special Topics in Art

Prerequisite: Sophomore standing. Topics in art that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

ART 310 Medieval Architecture and Society

Prerequisite: Junior standing. This course examines the monuments of medieval architecture in their historical context. We will study knightly castles and peasant cottages as well as the great Romanesque and Gothic

abbeys and cathedrals, with the ultimate goal of learning not only about the buildings themselves but the society that created them. Note: this course is equivalent to HIST 310 and satisfies both the aesthetic perspective and historical perspective requirements.

3 cr.

ART 390 Special Topics in Art

Prerequisite: Junior standing. Topics in art that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

AS Aerospace Studies

(Air Force ROTC/College of Business)

AS 111 Air Force Today I

Participative survey course designed to introduce students to the U.S. Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, leadership and followership, professionalism, military customs and courtesies, Air Force officer opportunities, military pay and benefits, and an introduction to communication skills. All textbooks and special reference materials are supplied by the department.

1 cr.

AS 112 Air Force Today II

Continuation of AS 111. Additional study of the organizational structure of the Air Force with emphasis on leadership, interpersonal relationships, team building, leading diverse organizations, and communication skills. All textbooks and special reference materials are supplied by the department.

1 cr.

AS 191 Advanced Physical Fitness

Designed to encourage physical fitness and improve self-confidence. Warm-up exercises, calisthenics, running, various team sports. All exercises accomplished as a group.

1 cr.

AS 223 Air Force Way

Participative survey course designed to facilitate the transition from Air Force ROTC cadet to Air Force ROTC officer candidate. Featured topics examine general aspects of air and space power through a historical perspective. Time periods covered range from the first balloons and dirigibles through the Korean War and into the Cold War era, Air Force heritage and leaders. All textbooks and

special reference materials are supplied by the department.

1 cr.

AS 224 Air Force Way II

Continuation of AS 223. Further study of air power from the Vietnam War through today's critical air and space components of national defense. Also included is Air Force support of civic actions, scientific missions, and space exploration. Effective communication techniques are emphasized. All textbooks and special reference materials are supplied by the department.

1 cr.

AS 335 Air Force: Leadership and Management I

Concepts of management and leadership in relation to the role of the U.S. Air Force officer. Includes leadership, followership, military briefing techniques, critical thinking, problem solving, management functions, power and influence, leadership authority and responsibility, conflict management, feedback, counseling, corrective supervision, situational leadership, motivation, and effective writing.

3 cr.

AS 336 Air Force: Leadership and Management II

Continuation of AS 335. Includes effective supervision, profession of arms, leadership accountability, teambuilding, military ethics, ethics, effective writing, professional relations, officer evaluating techniques, officer professional development, and communication skills.

3 cr.

AS 441 National Security Policy I

U.S. Constitution, government and its impact on the military, civil-military relations, contemporary societal and global issues in the armed forces; supervision, discipline and military justice; other pre-commissioning topics.

3 cr.

AS 442 Preparation for Active Duty

Continuation of AS 441. Advanced topics in preparation for U. S. Air Force service include effective supervision and feedback, military justice, and military law, Air Force policies and other pre-commissioning topics.

3 cr.

BIO Biology

(College of Arts and Sciences)

BIO 101 Basic Biology: Organisms

This is an introduction to the biology of organisms and their component parts. Intended primarily for nonmajors, the emphasis is on the structure and function of human cells and organs. Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

BIO 102 Basic Biology: Populations

Prerequisite: BIO 101. This is an introduction to the interactions of organisms. Intended primarily for nonmajors, the emphasis is on inheritance, evolution, and ecology. Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

BIO 103 Life Sciences I

This course is an introduction to cells, plant biology and human anatomy and physiology. It is intended for elementary education majors.

Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

BIO 107 General Biology I

Prerequisite: One unit of secondary school chemistry or CHEM 102; corequisite: BIO 117. Intended for science majors, this course focuses on evolution, biochemistry, cells, and genetics. Students learn the basic concepts of biology and write about them using the appropriate vocabulary. Students also use their new knowledge to practice problem solving.

3 cr.

BIO 108 General Biology II

Prerequisite: BIO 107, BIO 117; or permission of the instructor; corequisite: BIO 118. Intended for science majors, the focus is on the diversity of life, the function of organs in animals, and ecology. Students learn the basic concepts of biology and write about them using the appropriate vocabulary. Students also use their new knowledge to practice problem solving.

3 cr.

BIO 117 General Biology Laboratory I

Prerequisite: BIO 107 or concurrently. Students apply scientific thinking and basic technical skills to the study of cells. Methods practiced include microscopy, spectroscopy, and chromatography as well as the collection, graphing, and interpretation of data. Three-hour lab.

1 cr. Laboratory fee \$50.

BIO 118 General Biology Laboratory II

Prerequisite: BIO 108 or concurrently. Students examine the difference between various types of organisms and dissect a typical mammal to study its internal structure. They also learn and use the applicable terminology. Three-hour lab.

1 cr. Laboratory fee \$50.

BIO 151 The Biology of Human Reproduction

Prerequisite: BIO 101. This course is a study of the anatomical structure and biological function of the human reproductive system. It includes such topics as the menstrual cycle, puberty, fertilization, embryonic development, birth, contraception, and sexually transmitted diseases. This is a one semester course without a lab. Therefore, BIO 101 followed by this course would meet the General University Requirements for the Natural Science Perspective.

3 cr.

BIO 152 Human Heredity

Prerequisite: BIO 101. This course introduces the student to an overview of hereditary issues in humans. Topics include inheritance patterns, DNA profiling uses in forensics, gene therapy, recombinant DNA technologies, and pedigree analysis. This is a one semester course without a lab. Therefore, BIO 101 followed by this course would meet the new GUR requirements for the Natural Science Perspective.

3 cr.

BIO 153 Principles of Environmental Science

Prerequisite: BIO 101 or CHEM 101/CHEM 105 or GEOL 101. Finding effective solutions to most environmental problems requires an understanding of sound science and engineering, good public policy, an appreciation of political and economic reality, and an ethical sense of the relationship between humans and the natural world. The interrelationships among these principles provide the unifying theme for this course, which will be covered in five parts. This is a one semester course without a lab. Therefore, BIO 101 or CHEM 101 followed by this course would meet the General University Requirements for the Natural Science Perspective.

3 cr.

BIO 154 Bioterrorism and Infectious Disease

Prerequisite: BIO 101 or BIO 107. Intended for nonscience majors, this course focuses on infectious diseases of humans, the treatments and preventative measures associated with them, and their potential in terrorism. Students

learn basic concepts of microbiology and immunity and use the internet to research and write about them using the appropriate vocabulary. Students also use their new knowledge to practice problem solving. BIO 101 or BIO 107 followed by this course will satisfy the Natural Science Perspective.

3 cr.

BIO 156 Biological Evolution

Prerequisite: BIO 101, GEOL 101, or permission of instructor. An introduction to the historical development of the Theory of Evolution, the evidence for and mechanisms of evolution, and the major events in the history of life on Earth with emphasis on humans. BIO 101 or GEOL 101 followed by this course fulfills the GUR requirement for the Natural Science Perspective.

3 cr.

BIO 190 Special Topics in Biology

Topics in biology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

BIO 201 Plant Biology (Formerly BIO 301)

Prerequisite: BIO 108. Students examine various kinds of plants as well as their structure, internal workings, ecological relationships, and evolution. They learn basic concepts and write about them using the appropriate terminology. Data collecting, analysis, and interpretation are also practiced. Three class hours, three-hour lab.

4 cr. *Laboratory fee \$50.*

BIO 203 Microbiology (Formerly BIO 303 and BIO 313)

Prerequisite: BIO 107, BIO 117, and sophomore standing. This is an introduction to bacteria and viruses, and the techniques for working with bacteria and viruses, including their isolation, identification, and enumeration. Three class hours, three hour lab.

4 cr. *Laboratory fee \$50.*

BIO 213 Ecology

Prerequisite: BIO 108, CHEM 105 or concurrently. This is a study of the interaction of plants and animals and their relationship to the physical environment. Such topics as population dynamics, food chains, energy flow, and adaptations are included. Three class hours, three hour lab.

4 cr. *Laboratory fee \$50.*

BIO 215 Anatomy and Physiology I

Prerequisite: BIO 108/118 and CHEM 106. This course offers a comprehensive study of human

anatomy and physiology at the cell, tissue, and organ system levels of organization. Topics include anatomical terminology, the basic chemistry of life, structure and function of human cells and tissues, and the anatomy and physiology of integumentary, reproductive, nervous, and endocrine systems. Three class hours, three-hour lab.

4 cr.

BIO 216 Anatomy and Physiology II

Prerequisite BIO 215. A continuation of BIO 215, this course includes a study of the structure and function of the skeletal, muscular, cardiovascular, immune, digestive, respiratory, urinary, and reproductive systems. Three class hours, three-hour lab.

4 cr.

BIO 290 Special Topics in Biology

Prerequisite: Sophomore standing. Topics in biology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies

1-3 cr.

BIO 304 Histology

Prerequisite: BIO 108 and junior standing. This is a microscopic study of tissues. The course discusses their origin, structure, and relationships to organs. There is an introduction to histological techniques. Three class hours, three-hour lab. Offered every three years.

4 cr. *Laboratory fee \$50.*

BIO 306 Genetics

Prerequisite: BIO 107 and CHEM 210. A study of classical organismal heredity and its molecular basis. Topics will include Mendelian principles, gene structure and function, and changes in genetic material. Three class hours, three-hour lab.

4 cr. *Laboratory fee \$50.*

BIO 310 Cell Biology

Prerequisite: BIO 107 and CHEM 210. Students examine cellular structure and function including the molecular organization of the various cell organelles. They learn basic concepts and write about them using the appropriate terminology. An oral presentation is also required of every student. Data collecting, analysis, and interpretation are practiced in the laboratory. Three class hours, three-hour lab. Offered in the spring semester.

4 cr. *Laboratory fee \$50.*

BIO 312 Developmental Biology

Prerequisite: BIO 108; CHEM 106 and junior standing. Students examine the embryonic development of animals and its genetic

control. They learn basic concepts and write about them using the appropriate terminology. Students practice the manipulation of sea urchin, salamander, and chicken embryos in the laboratory. Three class hours, three-hour lab. Offered in alternate years in the spring semester.

4 cr. Laboratory fee \$50.

BIO 333-334 Independent Study in Biology

See "Independent Study" on p. 39.

1-3 cr. Laboratory fee may be required.

BIO 390 Special Topics in Biology

Prerequisite: BIO 108 and junior standing. Members of the biology faculty offer selected topics in their areas of specialty. These courses are not offered on a regular basis and may be repeated for credit if the topic differs.

1-3 cr. Laboratory fee may be required.

BIO 401 Recombinant DNA/Fingerprinting

Prerequisite: BIO 306 or concurrently. This course introduces the techniques and tools of isolating DNA, use of recombinant DNA techniques to move genes, to recognize genes, to understand the sequencing of DNA, and the use of bioinformatics to compare genetic sequences.

3 cr. Laboratory fee may be required.

BIO 440 Undergraduate Research

Prerequisite: Senior standing. See "Undergraduate Research," p. 32.

1-3 cr. Laboratory fee may be required.

BIO 455 Evolution

Prerequisite: BIO 306 and senior standing. This is a study of organic evolution and its theoretical basis. This course develops three major themes: the history of evolutionary thought, the mechanisms of evolution, and highlights in the history of life.

3 cr.

BIO 480 Internship in Biology

See "Internships" on p. 31.

3 cr.

BIS Business Information Systems

(College of Business)

BIS 102 Problem Solving with Business Tools

Prerequisite: College of Business students only or permission of department chair. This is a hands-on course on business problem solving. The tools used are a spreadsheet and a database software. Objective of the first part of

the course is to practice creating spreadsheet models. Course starts with navigation, cell addressing, workbook and worksheet concepts. Applications are designed using built-in functions with special emphasis on financial functions. Charting concepts are introduced as presentation tools. Other skills include: working with Pivot tables, goal-seeking and what-if modeling. The second part of the course is introduction to DBMS with emphasis on using and developing database applications for a business context. Topics include: Table design, Query design, Reports and Forms design.

3 cr.

BIS 202 Introduction to Business Information Systems

Prerequisite: BIS 102 or CS 131 and sophomore, junior or senior standing. This course is an introduction to Information Systems as a discipline including a survey and overview of the role and functions of IS in a business organization, IS job functions and career paths, and the nature and vocabulary of major information systems technologies. The course explores the role of IS in advancing the digital economy and as a competitive tool for business. Course includes hands-on work with SAP software to show the relationships between the different business functions. This course satisfies the SAP Certificate requirement.

3 cr. Laboratory fee \$50.

BIS 210/IT 240 Foundations of Web Systems

Prerequisite: IT 230 or permission of instructor. This course provides students with the foundation for Web site development and maintenance. Students learn about web browsers, how URLs are resolved, and web pages are returned. They learn hypertext, self-descriptive text, webpage design, web navigational systems, and digital media. Students become proficient with common tools for authoring and publishing Web pages.

3 cr.

BIS 220 Introduction to Business Statistics

Prerequisite: BIS 102 and MATH 112. This is a comprehensive introduction to the use of statistics in business decision-making. This course provides the analytical tools needed for making informed business decisions using data. The focus is on decision-making using the tools of statistics. Topics include graphical and numerical summaries of data, probability distributions; hypothesis tests of mean and proportion, and simple linear regression. The

use of computing tools in statistical analysis is emphasized heavily. Credit for both this course and MATH 120 or PSY 207 is not permissible.

3 cr.

BIS 300/CS 102/IT 102 Introduction to Programming

This is an introductory course to programming languages that focuses on the basic techniques of programming by introducing data types, declarations, assignments, loops, arrays, data structures, object-oriented programming, algorithms and problem solving, event-driven programming, and recursion. Four class hours.

4 cr.

BIS 302 Forecasting for Business

Prerequisite: BIS 220 and BIS 202. This is an exploration of statistical forecasting techniques for business. The major focus is on the development and utilization of forecasting models to assist managers in decision-making. Students develop and explore several computer-based forecasting models. Topics include the business-planning environment for forecasting, basic concepts of forecasting, time series models, and regression models.

3 cr.

BIS 305 Software Design for Business

Prerequisite: CS 102 or IT 102. Co-requisite: IT 240. A study of the contemporary models, technologies, and best practices applied in design, development, and management of complex enterprise system software. The software modeling issues will center around modern CASE (Computer Aided Software Engineering) and graphical design methods and tools. Team based and distributed software design tools will be utilized, featuring management and utilization of data centers, [reusable] software repositories, and multi-user versioning systems. Modern software design patterns, frameworks, and languages will be demonstrated and discussed. Student teams will develop business software components, utilizing a state-of-the-art software design, development, and management IDE (Integrated Development Environment). Issues in software design within SAP (Systems, Applications and Products in Data Processing) and in collaboration with SAP components will be explored. This course satisfies the SAP Certificate requirement.

3 cr.

BIS 310 Quality and Operations Management

Prerequisite: MATH 1xx, MATH 1xy, BIS 220, MAN 101, MK 200, AC 202, FIN 214, BIS 202. This is the second quantitative methods course. Topics covered include: supply chain management, benchmarking, forecasting methods, inventory management, MRP, SPC, design of experiments, project management, Six Sigma methodology and linear programming. These topics are covered from the perspective of quality management and process improvement. Cannot take BIS 310 and BIS 312 for credit.

3 cr.

BIS 312 Quality and Operations Management with SAP

Prerequisites: MATH 1xx, MATH 1xy; BIS 220; MAN 101, MK 200; AC 202; BIS 202; FIN 214. This is the second quantitative methods course. Topics covered include: supply chain* management, benchmarking, forecasting methods, inventory management, MRP, SPC, project management, six sigma methodology and linear programming. This course includes introductory hands-on implementation of supply chain and project management in SAP. These topics are covered from the perspective of qualitative management and process improvement. This course satisfies the SAP certificate requirement. Cannot take BIS 310 and BIS 312 for credit.

3 cr.

BIS 321 Database Management Systems

Prerequisite: IT 101 or CS 101 or BIS 300 and junior standing. Organizations increasingly rely on computerized database management as databases are an essential component of major information systems. This course provides students with an introduction to the analysis, design and implementation of relational databases. Students are introduced to the fundamental concepts and principles of database management, and gain practical experience by designing and deploying a database using a major DBMS.

3 cr. Laboratory fee \$50.

BIS 333-334 Independent Study in Business Information Systems

See "Independent Study" on p. 30.

1-3 cr. Laboratory fee may be required.

BIS 336 Logistics/Physical Distribution

Prerequisite: MK 200 and BIS 220. This is a study of physical distribution functions and their relationships within an organization. Case studies and readings are utilized to

study elements of distribution other than transportation: inventory control, warehousing and distribution centers, customer service, materials handling, industrial packaging, and international distribution. A quantitative analysis approach is emphasized.

3 cr.

BIS 350 Information Security

Prerequisite: BIS 321. This course provides an overview of the concepts, principles and practice for information security as well as the threats to the security of information systems. Topics include encryption and decryption, public key infrastructure, digital signature, authentication, access control, network security, e-commerce security.

3 cr.

BIS 360 Foundations of E-business

Prerequisite: BIS 321. This course has two components. First, it provides an overview of the essentials of electronic commerce. Topics such as internet retailing, EC models and applications, EC strategies, social and legal implications, security threats and payment systems are addressed. Second, this course focuses on online application development modules such as JavaScript for internet applications, XML, MySQL, and Apache.

3 cr.

BIS 361 Management of Information Systems

Prerequisite: BIS 202 and junior standing. This course addresses information systems from a management perspective. Emphasis is placed on the potential role of information and information systems in organizations. It also examines the major problems and opportunities for organizations to exploit the power of information systems while recognizing the limitations of both technology and employees. The strategic use of information systems is emphasized.

3 cr.

BIS 375 Non Profit Board Field Experience I

Prerequisite: Permission of instructor and junior standing in the College of Business. This is the first semester of a two semester course sequence. Students must successfully complete BIS 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board.

During the first semester students will attend board meetings and become oriented to the organization.

1 cr.

BIS 376 Non Profit Board Field Experience II

Prerequisite: BIS 375 and permission of instructor and junior standing in the College of Business.

This is the second semester of a two semester course sequence. Students must successfully complete BIS 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the second semester students become involved with a member of the board in a project area.

2 cr.

BIS 390 Special Topics in Business Information Systems

Prerequisite: Junior in BIS or permission of the instructor. Topics offered depend upon student interests as well as particular interests of instructors. This course is offered as often as faculty time and student interest permit and may be repeated for credit if the topic differs.

3 cr. *Laboratory fee may be required.*

BIS 412 Business Intelligence

Prerequisite: BIS 202. This course will introduce the topics of Business Intelligence and Business Information Warehousing. Topics covered will include: Data Mining, Corporate Information Factory, Association Analysis, Clustering, Decision Trees. Hands-on exercises will use SAP. This course satisfies the SAP certificate requirement.

3 cr.

BIS 413/IT 250 Data Communications and Networks

Prerequisite: IT 101 or CS 101 or BIS 300. This course provides an overview of the concepts and principles of telecommunications systems and networks, blending technical with managerial topics. It also provides coverage of major operating systems including Microsoft Windows, Linux, and Novell NetWare. Students will examine network architectures, data communications software and hardware, as well as the array of facilities and resources available on the Internet. Students will complete a series of hands-on network projects, and will analyze network design cases throughout

the semester. Students may sit for network certification following completion of the course.

3 cr. Laboratory fee \$50.

BIS 417 Systems Analysis and Design

Corequisite: BIS 321. This is an introduction to the systems development life cycle with emphasis on the analysis and design phases. Structured methodologies utilizing CASE tools, as well as prototyping techniques, are covered. A substantial analysis and design project is required.

3 cr.

BIS 419 Decision Support and Expert Systems

Prerequisite: BIS 202 and senior standing. This course covers decision support systems and expert systems in roughly equal measure. Issues that integrate the two fields, such as executive information systems, are addressed briefly. This is a hands-on course primarily using spreadsheets as examples of DSS and expert systems generators when addressing ES. Students develop a comprehensive understanding and appreciation of the role of each class of system as well as an understanding of the limitations of technology.

3 cr.

BIS 422 Advanced Database Management Systems

Prerequisite: BIS 321. This course is an advanced practicum in database design, implementation, and administration, utilizing an enterprise database management system. Three areas of database topics will be explored: (1) Database design with modeling and meta-data management tools; (2) Database creation, utilization, and optimization, with a focus on SQL and connectivity; (3) Database administration, including installation, operations, security, and recovery. A completion of two major projects will be required.

3 cr. Laboratory fee \$50.

BIS 428 Systems Development Project

Prerequisite: BIS 417 and senior standing in BIS. This is an integration of previous course work and an exploration of new issues in BIS. Topics include alternatives to the traditional life cycle methodology; analysis, design, coding, testing, and implementation of a system in a computer-aided software engineering (CASE) environment; the maintenance implications of the choices made; and team development using modern management techniques.

Presentations, demonstrations, reports, and a complete project are required.

3 cr.

BIS 430 Enterprise Computing

Pre- or corequisite: BIS 300/IT 102/CS 102, BIS 413, and BIS 417. This is a capstone course, building on knowledge and skills acquired by the students in earlier courses. It covers issues and techniques in the design and programming of enterprise-wide applications. A use of distributed-computing objects and technologies is emphasized. The students are exposed to the complexities of integrating a multileveled and distributed infrastructure. In particular, client (end-user), middle-ware, and enterprise database systems and tools are explored. The students are required to develop projects for client-server computing in a multitier architecture. Highly productive development tools are utilized.

3 cr. Laboratory fee \$50.

BIS 455 Enterprise Portal Design with SAP

Prerequisite: BIS 412. This course will introduce the concepts of Enterprise Portal design using Netweaver. The topics covered will include Web Application Server, Business Information, Exchange Infrastructure, Knowledge Management, Mobile Infrastructure, Master Data Management. Students will design sample applications in SAP. This course satisfies the SAP Certificate requirement.

3 cr. Laboratory fee \$50.

BIS 480-481 Internship in Business Information Systems

See "Internships" on p. 31.

3 cr.

BL Business Law

(College of Business)

BL 201 Introduction to Business Law

The goal of this course is to identify and distinguish the different aspects of the State and Federal Court System, as well as alternative dispute resolution options; identify legal issues and apply legal principles related to the following areas of law: torts, negligence, defamation, and contracts. Key learning outcomes for these areas of law include students' ability to: communicate the positions of the parties to a legal conflict; differentiate between the boundaries of law, ethics and sound business decision-making; and apply

legal analysis in planning and decision-making to avoid legal conflicts in business decisions.

3 cr.

BL 308 Labor Management Relations

Prerequisite: MAN 101 and junior standing. The course explores the elements associated with the formalized relationship between labor and management with particular emphasis on the collective bargaining framework. Key learning outcomes focus on the understanding, recognition, and application of concepts associated with: workplace factors that lead to union organizing; the elements of the organizing process; identification of unfair labor practices; the collective bargaining process, strike mechanisms, and mediation; the arbitration process; and the role of third parties in the labor-management relationship. Cannot take both BL 308 and BL 388 for credit.

3 cr.

BL 309 Business Law Simulation

Prerequisite: BL 201. This is a simulation focusing on the legal process and use of alternative dispute resolution (adr). Key learning outcomes include students' ability to apply and use methods of alternative dispute resolution in resolving legal conflicts. This is an experiential course that requires active student participation in role plays and other high involvement roles.

1 cr.

BL 350 Business Law for Arts and Entertainment

Prerequisite: AEM 250. The goal of this course is to identify and distinguish the different aspects of the State and Federal Court System, identify legal issues, and apply legal principles related to torts, and contracts. Specific attention will be given to arts and entertainment law topics such as intellectual property, copyright, First Amendment, representing talent, provenance and authentication. Key learning outcomes for these areas of law include students' ability to: apply and use the skills necessary to communicate the positions of the parties to a legal conflict; explain the differentiation between the boundaries of law and ethics in sound business decision making; and apply legal analysis in planning and decision making to avoid legal conflicts in business decisions. Cannot take both BL 201 and BL 350 for credit.

3 cr.

BL 360 Business Law for Sport Management

Prerequisite: SPMN 250. Open to Sport Management students only. The goal of this

course is to identify and distinguish the different aspects of the State and Federal Court System, identify legal issues, and apply legal principles related to torts, and contracts. Specific attention is given to legal issues related to the following areas of sport law: negligence law, defamation, disabilities, trademark, Title IX. Key learning outcomes for these areas of law include students' ability to: apply and use the skills necessary to communicate the positions of the parties to a legal conflict; explain the differentiation between the boundaries of law and ethics in sound business decision-making; and apply legal analysis in planning and decision-making to avoid legal conflicts in business decisions.

3 cr.

BL 388 Labor Management Relations in Sport

Prerequisite: BL 360 or permission of instructor. Students will acquire an understanding of the various phases of the labor-management relationship generally and in the sports industry. Specifically, this understanding will be achieved through an understanding of historical developments leading to the development of labor-management generally and labor-management relations in sports. In addition, the labor relations process will be studied including the union organizing process, the collective bargaining process, and the administration and interpretation of collective bargaining agreements. Cannot take both BL 308 and BL 388 for credit.

3 cr.

BL 424 Business Law for Human Resource Management

Prerequisite: BL 201 or BL 360, MAN 323. The goal of this course is to identify legal issues related to the following areas of human resource law: negligent hiring, employment at-will, race discrimination, sex discrimination (including sexual harassment), disabilities discrimination. Key learning outcomes for these areas of law include students' ability to: apply and use skills necessary to communicate the positions of the parties to a legal conflict; explain the boundaries between law and ethics in sound business decision-making; and apply legal analysis in planning and decision-making to avoid legal conflicts in business decisions.

3 cr.

BME Biomedical Engineering

(College of Engineering)

BME 201 Foundations of Biomedical Engineering

Prerequisite: ENGR 110, MATH 134, PHYS 134, CHEM 105. This sophomore level course introduces the students to fundamental concepts in the field of biomedical engineering including engineering calculations and an in-depth study on conservation principles, in particular, conservation of mass, energy, and charge. The course introduces students to the concept of mathematical modeling of biological and physiological systems. Students perform several laboratory exercises to gain experience using standard equipment and analyzing human data. The course incorporates one or more tours to clinical and/or industrial sites.

3 cr.

BME 202 Biomedical Systems

Prerequisite: EE 205 or ENGR 208, MATH 236, ME 204 or ENGR 206. Corequisite: BME 201. This sophomore level course introduces the students to concepts in systems theory as it relates to biomedical systems. Topics covered include time domain, Laplace domain, and Fourier domain analysis of systems, including impulse response, step response and system stability. Relevant physiological systems will be introduced and serve as a primer for deeper study of physiological systems in the junior year. The course will rely heavily on computer simulation.

3 cr.

BME 210 Introduction to Biomedical Engineering Research

Corequisite: ENGR 103. This course allows first- and second-year biomedical engineering students to perform research with a biomedical engineering faculty member. Students are expected to work three hours per week for each credit hour attempted. Students will present a formal report on their research project at the end of the semester.

Note: A maximum of 6 credit hours of research may be applied to complete BME degree requirements

1-3 cr.

BME 301 Engineering Physiology I

Prerequisite: BME 202; MATH 350 or concurrently. Corequisite: BME 305. This course combines the study of physiology, anatomy, and engineering. Students gain an in-depth understanding of specified physiological

systems and additionally study appropriate engineering models and concepts associated with the various systems. The systems covered include introduction to cell physiology, skeletal and smooth muscle, blood, circulatory system, immunology, and the endocrine system.

3 cr.

BME 302 Engineering Physiology II

Prerequisite: BME 301 and BME 305. Corequisite BME 306. This is the second of a two-part course that combines the study of physiology, anatomy, and engineering. Students gain an in-depth understanding of specified physiological systems and additionally study appropriate engineering models and concepts associated with the various systems. The topics covered include blood dynamics, cardiovascular physiology, respiratory system, renal system, and gastrointestinal system.

3 cr.

BME 305 Biomedical Engineering Laboratory I

Corequisite: BME 301, BME 331 and ENGR 212 or IE 212. This laboratory will allow the student to apply the concepts learned in the classroom to the real world. Experiments and exercises will be relevant to and augment the topics covered in the classroom. Topics include data acquisition, electromyography (EMG), hemorheology, humans as research subjects, and animals as research subjects.

1 cr.

BME 306 Biomedical Engineering Laboratory II

Prerequisite: BME 305; Corequisite: BME 302. This laboratory will allow the students to apply the concepts learned in the classroom to the real world. Experiments and exercises will be relevant to and augment the topics covered in the classroom. Topics include electrocardiography (ECG), enzyme immunoassay (EIA), thermofiltration, design of operational amplifiers, mechanical testing of materials, and contemporary research in biomedical engineering. Additionally, students will be required to participate in the College of Engineering Interdisciplinary Project in collaboration with the Department of Marketing.

1 cr.

BME 331 Bioinstrumentation

Prerequisite: BME 202, ENGR 208 or EE 205. This course introduces students to the principles and techniques of acquiring data from the human body. Topics include measurement terminology, conversion of analog and digital

signals, transduction, sensors, and medical imaging. Students will learn how to measure a wide variety of physiologically relevant phenomena including: temperature, pressure, flow, bioelectric signals, and concentration of biochemical analytes. Students explore the design features of instrumentation related to making measurements from the following physiological systems: cardiovascular system, nervous system, and respiratory system. Students design, build and validate biomedical amplifier circuits, specify off-the-shelf equipment, and study the latest advances in medical instrumentation.

3 cr.

BME 332 Biomedical Imaging

Corequisite: BME 301, BME 331, or permission of the instructor. This course is a study of the underlying principles associated with medical imaging systems. Several medical imaging modalities will be studied including: x-ray, computed tomography, ultrasound, magnetic resonance imaging, and nuclear imaging. Topics will focus on clinical applications of the technology.

3 cr.

BME 335 Medical Image Processing

Prerequisite: ENGR 105 and ENGR 208 or EE 205, and junior standing in engineering. This course introduces students to the fundamental processes and algorithms implemented as standard image processing techniques. The image analysis performed in the course will utilize only digital images and primarily grayscale images. The focus of the course is on medical image processing applications. Topics covered include spatial resolution and spatial frequency, image histograms, spatial filtering and image segmentation.

3 cr.

BME 340 Biomaterials

Prerequisite: CHEM 105, BME 201, BME 301 and PHYS 134. This is an introduction to the fundamental concepts of materials science with applications in biomedical engineering. Students analyze physical properties of biomaterials, understand the interaction of the biomaterial with the human body, examine material specifications and fabrication methods, and compare and contrast various materials for an application.

3 cr.

BME 350 Biomedical Thermal Systems

Prerequisite: CHEM 106, MATH 236, and BME 301. This course is a study of the physical and mathematical concepts of thermodynamics,

fluid mechanics, and heat transfer with an emphasis on physiological and biological examples. Students perform material balances and apply the first and second law of thermodynamics to biomedical systems. Additional topics include an introduction to biomedical fluid mechanics using the Bernoulli and energy equations and the study of heat transfer to and from the human body under various environmental conditions.

3 cr.

BME 380 Biomedical Engineering Practicum

Prerequisite: Junior standing and permission of instructor. Projects in which engineering analysis and design are applied to practical engineering problems in the rehabilitation, instrumentation, biological, or medical fields. A written plan at the time of registration and a final oral and written report are required.

3 cr.

BME 405 Biomedical Engineering Senior Laboratory

Prerequisite: BME 302, BME 306, and BME 331. This senior level course is designed to foster independent thinking in the laboratory. Students will conduct experiments on living systems and will develop fundamental skills in designing experiments. Additionally, students will participate in a multidisciplinary team design project.

1 cr.

BME 410 Biomedical Engineering Research

Corequisite: BME 301. This course allows third- and fourth-year biomedical engineering students to perform research with a biomedical engineering faculty member. Students are expected to work three hours per week for each credit hour attempted. Students will present a formal report on their research project at the end of the semester.

Note: A maximum of 6 credit hours of research may be applied to complete BME degree requirements

1-3 cr.

BME 431 Advanced Bioinstrumentation

Prerequisite: BME 331, BME 302, and senior standing or permission of instructor. This course is a study of practical aspects of designing instrumentation for biomedical applications. The course will include topics such as semiconductor devices and applications, nonideal amplifiers and filters, noise in electrical circuits, data acquisition principles, and regulatory requirements. Students will learn to design and validate subsystems, focusing on critical performance

parameters and the limitations of the devices for practical use.

3 cr.

BME 432 Lab on a Chip

Prerequisite: CHEM 105 and ENGR 208 or EE 205, or permission of the instructor. This course studies the design, development, and application of Lab on a Chip systems in the biomedical and life sciences. Topics include fundamentals of miniaturization, microfluidics, sensors, fabrication, packaging, and system integration. Students will review current applications of miniaturized chemical/biological analysis systems and will investigate case studies through the preparation of a term paper and oral presentation. Students will also design a basic microfluidic system that will be implemented in a hands-on laboratory project.

3 cr.

BME 434 Biosensors, BioMEMS, and Nanomedicine

Prerequisite: CHEM 105 and ENGR 208 or EE 205, or permission of the instructor. This course studies the development and application of micro and nanotechnologies in medicine. Topics include biosensors, transduction mechanisms, and fundamentals of bio-microelectromechanical systems (BioMEMS). Recent progress in nano-scale sensors and systems will also be explored, including nanoparticle-based systems for targeted therapy, drug-delivery, and nanobiosensors.

3 cr.

BME 437 Senior Design Projects I

Prerequisite: Senior standing; Co-requisite: BME 405. Working under the supervision of the biomedical engineering faculty, students select a capstone design project, thoroughly research solutions, and undergo formal design reviews. Students will learn and apply fundamental project management techniques to their projects. They are encouraged to work on clinically or industry relevant projects. The students will undergo formal design reviews with faculty, clinical, or industrial sponsors, and other students. Students are assessed with progress reports, design reviews, and the creation of a design history file. The project will be continued in BME 440 in the subsequent semester.

3 cr.

BME 440 Senior Design Projects II

Prerequisite: BME 437. Working under the supervision of biomedical engineering faculty and project advisors, students complete the

work on a capstone project that was proposed in BME 437. Students organize formal design reviews with faculty, other students, and industrial sponsors. Students are assessed with weekly progress reports, design reviews, a final written report, and an oral defense of the project. Additionally, students will prepare and submit a technical paper for external dissemination of their project results to a regional biomedical engineering conference.

4 cr.

BME 443 Advanced Biomedical Materials and Medical Devices

Prerequisites: BME 340 or ME 309. This course is designed to explore the field of biomaterials and medical devices. The basic science of metals, ceramics, polymers and biological materials used in medical and dental applications will be presented. Major concepts will focus on structure-property relationships and the physical and mechanical properties of these important classes of materials. Other topics will include modes of materials degradation and failure, including metallic corrosion, wear and fretting, and polymer degradation. Issues related to the biocompatibility of materials and the performance of medical devices will be presented. An emphasis is placed on surface and interfacial properties of biomaterials and the biological response of the human body to the presence of artificial materials. Examples of specific implants and medical devices will be presented and studied both through lecture materials and group projects.

3 cr.

BME 451 Biomechanics

Prerequisite: ENGR 206 or ME 204, BME 350, and MATH 236. This course is a study of orthopedic biomechanics. Topics include the application of engineering mechanics to problems related to orthopedic biomechanics as well as the relationship between the biological structures and mechanical properties of bone, skeletal muscle, tendons and ligaments, and articular cartilage.

3 cr.

BME 452 Biofluid Mechanics

Prerequisite: BME 302, ENGR 206 or ME 204 or permission of the instructor. This course will cover the principles of fluid statics and dynamics and their application to the human circulatory system. Topics will include the rheological properties of blood, models of flow of blood in large and small vessels, flow

through prosthetic devices (e.g. heart valves), and alterations in flow due to disease.

3 cr.

BME 460 Cell and Tissue Engineering

Corequisite: BME 302 and BME 306, or permission of the instructor. This course will cover principles behind the rapidly advancing field of cell and tissue engineering. Topics include the culture of mammalian cells, the role of mechanical forces in cellular processes, and biomaterial-cell interactions. Example of the development of tissue-engineered devices for the replacement of blood vessels and heart valves, liver, kidney, and bone and cartilage will be studied.

3 cr.

BME 471 Product Development and Innovation

Prerequisite: Senior standing in engineering. This course will cover new product innovation from both an entrepreneurship and intrapreneurship perspective. Students will learn about generating and identifying business opportunities, assessing concept ideas from technical, market, and financial perspectives; designing and developing new products; testing prototypes from technical and market perspectives; and developing a marketing plan including launch, monitoring, and measurement provisions. Interdisciplinary teams of business and engineering students will apply these principles to develop product concepts, prototype products, final designs, and marketing plans for a new consumer or business product. The final designs and plans will be presented to an expert panel of business executives, investors, and faculty.

3 cr.

BME 480 Internship in Biomedical Engineering

See "Internships" on p. 31.

3 cr.

BME 490 Special Topics in Bioengineering

This is a study of an advanced topic in bioengineering of special interest to engineering majors, but not offered on a regular basis.

3 cr.

BUS Business

(College of Business)

BUS 101 First Year Business Seminar

This is a course designed specifically for new college students in the College of Business. The

emphasis, which is on personal development, focuses on an understanding of self and the habits necessary for personal effectiveness and for effective relationships with others. Key learning outcomes include: time management skills, listening skills, oral presentation skills, critical thinking skills, and information literacy skills. The course includes a term project and exposure to the range of career options consistent with students' personal mission statements. There is a high level of interaction with the faculty and peers both inside and outside the classroom.

3 cr.

BUS 210 Living and Learning Abroad

Prerequisite: Sophomore standing, concurrent enrollment in approved study abroad program. This course focuses on intercultural concepts and skills necessary for business students to maximize the study abroad experience. Readings, online class discussions, and course activities take place throughout the semester abroad. Topics include: country shock and culture shock, values and culture, educational culture, stereotypes and generalizations, intercultural communication, global and self-awareness, empathy, perspective shifting, and re-entry.

1 cr.

BUS 290: Special Topics in Business

This is a study of topics in business that are not offered on a regular basis.

3 cr.

BUS 301 Managing the Established Enterprise

Prerequisite: AC 202, BIS 202, BIS 220, BL 201/BL 360/BL 350, FIN 214, MAN 101, and MK 200. The course provides an intermediate integrative framework between BUS 101 and BUS 450 for continued development of analytical and decision-making skills in the business environment. Focused on the established firm, the course integrates core concepts from each functional area covered in introductory coursework as a means of understanding the impact of planning, operating, and control processes in firm performance. Students will analyze operational elements of existing firms through case analysis as an element of course pedagogy. Established learning outcomes include: applying financial and qualitative analyses to evaluate operational performance, explaining the nature and role of planning and control in enterprise success, and understanding the impact of functional

decisions on multiple areas of the firm. Cannot take BUS 301 and BUS 312 for credit.

3 cr.

BUS 312 Integrated Business Operations with SAP

Prerequisites: AC 202, BIS 202, BL 201/BL 360/BL 350, FIN 214, BIS 220, MAN 101, and MK 200. The course provides the intermediate integrative framework between BUS 101 and BUS 450. It does so by using SAP to capture the information generated in executing business processes/operations. Students will configure a business by creating the essential business functions, such as a general ledger, and establish organizational elements of the business. Students will also execute business transactions using the organizational elements of the company setup in SAP. The course demonstrates integration between functional areas through execution of business transactions. Using SAP as a tool, the student will build upon the introduction to each of the functional areas of business in an integrative manner. This course satisfies the SAP certificate requirement. Cannot take BUS 301 and BUS 312 for credit.

3 cr.

BUS 315 International Practicum (Formerly BUS 300/310, MAN 315)

Prerequisites: Sophomore standing and consent of instructor. International Practicum involves trips of one-to-two week duration during school breaks that are chaperoned and supervised by a business faculty member. These trips take students outside the geographic borders of the U.S. and provide learning experiences beyond the classroom environment. Programs and activities enhance the ability of students to comprehend, analyze, and grasp different cultural aspects that have impact on successful management of organizations in the global work environment. The major goal of the International Practicum is to allow undergraduate students opportunities to enhance their understanding of cross-cultural differences and the globalization of the work environment. The course may be repeated for credit if the location/topic varies. Note: This course is equivalent to CUL 315; students wishing to satisfy the cultural studies perspective should enroll in CUL 315 and CUL 316.

1 cr.

BUS 316 International Practicum Seminar (Formerly BUS 311, MAN 316)

Prerequisites: Concurrent enrollment in BUS 315 (International Practicum). This course serves as a complement to BUS 315 International Practicum (1 credit) and may be taken only during the semester the student is enrolled in the corresponding BUS 315 travel/study course. The seminar is designed to provide students with an enhanced context and framework for their International Practicum study/travel experience. The course involves research and discussion of the contemporary business environment in the country they will be visiting, including current political, social, cultural, and economic issues facing businesses in that area. The course may be repeated for credit if the location/topic varies. Note: This course is equivalent to CUL 316; students wishing to satisfy the cultural studies perspective should enroll in CUL 315 and CUL 316.

2 cr.

BUS 320 Mind Your Own Business – Practicum

Prerequisite: MAN 251. This course provides students with an opportunity to gain hands-on experience in running a small business at the University. The course is designed to allow the student to practice start-up of small business operations through a variety of activities and assignments that may include market research, budgeting, product development, promotional material development, sales, and webpage development. Outcomes focus on effective performance as a member of an entrepreneurial team, development of critical thinking skills, application of quality management principles, ethical marketing, accounting, and finance practices to business operations and customer service, application of research and statistical analysis techniques for problem-solving and business decision-making, learning beyond traditional classroom boundaries, development of professional skills, and refinement of career direction.

3 cr.

BUS 350 Business Etiquette and Professionalism

Prerequisite: Junior Standing. This course is designed to introduce students to elements of culture and behavior in a professional atmosphere that contribute to personal and professional success. Students will examine a variety of professional customs including communication norms, behavioral expectations, and professional appearance.

In addition, students will be introduced to different norms for these areas in international settings.

3 cr. \$25 Lab Fee

BUS 361 Industry Studies: Resort, Gaming, Hospitality

Prerequisite: MAN 101, MK 200, BL 201, or 360, Junior Standing. This course is focused on the management of resort, gaming, and hospitality operations. This course will introduce students to the tourism industry as they explore the history as well as the current business considerations for the resort, gaming, and hospitality enterprise. Students will learn to apply business and management skills and tools based on regulations, financial requirements, human resource needs, marketing and sales strategies, accounting, and security technological innovations.

3 cr.

BUS 362 Industry Studies: Health Services

Prerequisite: Sophomore standing. This course explores the characteristics and components of the U.S. healthcare industry. This will include an examination of U.S. healthcare systems and how they are organized and financed, a review of the healthcare workforce, the role of research and technology, an exploration of the various components of healthcare delivery to include hospitals, ambulatory care, and long term care delivery models as well as some of the major challenges facing the healthcare industry in the U.S.

3 cr.

BUS 364 Industry Studies: Golf Management

Prerequisite: Junior standing or permission of instructor. This course is designed to introduce students to the business of the golf industry. Students will explore all aspects of golf operations including management of tournaments, golf manager-professional services, golf shop services, food and beverage, recreation facilities, club amenities, and the golf course/grounds itself. Students will examine golf industry specific business applications including marketing and sales strategies, revenue development, customer service, and the various owner/management work settings in golf. Current and future issues in golf management including environmental impact and sustainability, economic challenges, and technological applications will be explored. Students will also learn about employment requirements and career opportunities in the golf industry.

3 cr.

BUS 390 Special Topics in Business

This is a study of advanced topics in business of special interest to business majors, but not offered on a regular basis.

1-3 cr.

BUS 423/BME 471/ME 423 Product Development and Innovation

Prerequisite: Senior standing in the College of Business. This course will cover new product innovation from both an entrepreneurship and intrapreneurship perspective. The course will have three components: a theoretical, a practical or clinical, and an application. The theoretical will consist of generating and identifying business opportunities; assessing concept ideas from technical, market, and financial perspectives; designing and developing new products; testing prototypes from technical and market perspectives; and developing a marketing plan including launch, monitoring, and business-engineering student teams. These teams will identify consumer or business new product ideas on their own or selected from a faculty generated list of ideas. The application component will involve presenting the final designs and plans to an expert panel of business executives investors and faculty.

3 cr.

BUS 450 Business Strategy

Prerequisite: BUS 301 or BUS 312 and BIS 310 or BIS 312. Not to be taken concurrently with BUS 301 or BUS 312. The course provides the framework for an overall integration of business perspectives in the development of an organization's strategies. Key learning outcomes include: identification of the key elements of the strategic management process; explaining operational and strategic-level decisions; explaining environmental opportunities and threats; explaining a firm's strategic performance through financial statements; making decisions about a firm's chosen strategies; and the application of strategic management theories.

BUS 480 Internship in Business

See "Internships" on p. 31.

3 cr.

CHEM Chemistry

(College of Arts and Sciences)

CHEM 101 Modern Chemistry I

This is an introductory course intended to help students with little background in the

physical sciences to understand the material environment. Modern concepts of atomic and molecular structure are developed and used to explain the properties of familiar substances including solids, liquids, and gases. Laboratory work is designed to enhance understanding of fundamental concepts at the practical level and may include field sampling and demonstrations as well as individual experiments. Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

CHEM 102 Modern Chemistry II

Prerequisite: CHEM 101 or one year of secondary school chemistry. A study of basic chemical models is applied to topics in current technology. Topics include the chemistry of synthetic materials, of living systems, of energy sources, and of environmental pollution as well as the ethics of science and technology. Laboratory work includes polymer synthesis, sampling, and analysis of household products and foods, and environmental analysis. Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

CHEM 105 General Chemistry I

Prerequisite: One unit of secondary school chemistry. This is the first course of a two-semester sequence intended for science and engineering majors and students who wish a more in-depth study of chemical principles than is provided in CHEM 101. The following topics are explored: stoichiometry, atomic and molecular structure, states of matter, and properties of solutions. Three class hours, three-hour lab.

4 cr. Laboratory fee \$50.

CHEM 106 General Chemistry II

Prerequisite: CHEM 105. An extension of CHEM 105, this course illustrates and amplifies the principles developed previously. New material includes the descriptive chemistry of the elements, chemical equilibria, energetics and rates of reaction, electrochemistry, nuclear chemistry, and an introduction to organic and polymer chemistry. The laboratory illustrates these topics and provides the student with experience in the separation and identification of inorganic species in solution. Three class hours, three-hour lab.

4 cr. Laboratory fee \$50.

CHEM 151 The Chemicals In Our Lives

Pre-requisite: CHEM 101, BIO 101 or PHYS 101 or permission of the instructor. This course examines the role that chemistry plays in our lives by studying some of the chemicals most widely used by human beings. After a brief

review of some basic chemical concepts, one or more chemicals from the following areas will be studied: cosmetics, nutrition, plastics and fibers, cleaning agents, medicines, and drugs. In each case, the science underlying the chemical's mode of action, the history of its development, and its benefits and risks will be considered. This is a one semester course without a lab. This course would meet the General University Requirements for the Natural Science Perspective.

3 cr.

CHEM 152 The Chemistry Of Fine Things

Prerequisite: BIO 101, PHYS 101, or CHEM 101. In this course, students will explore the science behind the 'finer things of life.' The creation of paintings; perfume; wine; pieces of art, glass, and pottery; gourmet food; and other luxuries depend upon chemical, biological, and physical processes. Understanding these transformations and how they are used creatively is essential to both the development and preservation of works of art. In addition, a discussion of the biochemical processes that are central to the perception (and misperception) of these 'fine' things will be included. This is a one semester course without a lab. Therefore, BIO 101, PHYS 101, or CHEM 101 followed by this course would meet the General University Requirements for the Natural Science Perspective.

3 cr.

CHEM 154 Crime Scene Chemistry

Prerequisite: CHEM 101 or permission of instructor. Crime scene chemistry will introduce students to the chemical, physical, and biological principles that contribute to successfully collecting, preserving, and analyzing evidence from criminal investigations. Students will gain a realistic view of the capabilities and limitations of the scientific techniques used in forensic examinations. This course fulfills the natural science perspective.

3 cr.

CHEM 159 Astrobiology

Prerequisite: CHEM 101, BIO 101, PHYS 101, or permission of the instructor. The goal of this course is to introduce, to the non-science major, the main findings and ideas of astrobiology. Topics covered will include: the definition of living thing; the origin and early evolution of life on Earth; the conditions that make a planet habitable and the results of efforts to discover life elsewhere in the universe, as well as synthesize it or, Earth. An overriding theme in

all of these topics will be the unity of all things, including human beings, in the universe. This course fulfills the natural science perspective.
3 cr.

CHEM 190 Special Topics in Chemistry

Topics in chemistry that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.
1-3 cr.

CHEM 209 Organic Chemistry I

Prerequisite: CHEM 106, CHEM 219, or concurrently. This is an introduction to the basic principles of organic chemistry. Emphasis is on functional group recognition and reactivity of the simpler structural classes. Nomenclature, stereochemistry, and selected reaction mechanism are studied.
3 cr.

CHEM 210 Organic Chemistry II

Prerequisite: CHEM 209, CHEM 219, CHEM 220, or concurrently. This is a continuation of CHEM 209. The higher functional groups and structural classes are considered. Additional reaction mechanisms, synthesis, and spectroscopic methods are introduced.
3 cr.

CHEM 211 Analytical Methods

Prerequisite: CHEM 106, CHEM 221, or concurrently. This is a study of the theory and methodology of classical and modern analytical chemistry. Topics include statistical treatment of data, errors, precipitation processes, the equilibria associated with gravimetric procedures, acid-base and redox titrations, and related items.
3 cr.

CHEM 219 Organic Chemistry Laboratory I

Prerequisite: CHEM 209 or concurrently. Laboratory for CHEM 209. The laboratory exercises are designed to increase students' skills in planning, conducting, and interpreting the results of experimental work. Students are introduced to the basics of synthetic organic chemistry techniques. Four-hour lab.
1 cr. Laboratory fee \$50.

CHEM 220 Organic Chemistry Laboratory II

Prerequisite: CHEM 210 or concurrently. Laboratory for CHEM 210. This is a continuation of CHEM 219. Emphasis is on the identification of chemical compounds by both chemical and spectroscopic techniques. Four-hour lab.
1 cr. Laboratory fee \$50.

CHEM 221 Analytical Methods Laboratory

Prerequisite: CHEM 211 or concurrently. Laboratory for CHEM 211. The objective of the laboratory is the development of precise experimental techniques and organizational skills. Classical gravimetric and volumetric methods are applied in order to determine the percent composition of several samples of minerals, ores, or alloys, and to characterize qualitative aspects of selected systems. Four-hour lab.

1 cr. Laboratory fee \$50.

CHEM 240-241 Research Projects in Chemistry

Prerequisite: CHEM 106, sophomore standing, a minimum GPA of 3.00, and permission of the instructor. Research Project courses provide students with an opportunity to explore, in the chemistry laboratory, topics that go beyond what is normally covered in their coursework as well as help develop good laboratory and research skills. In addition to the specific goals of the project, this course will focus on accurate record keeping, acquiring basic gravimetric and volumetric technique, and laboratory safety. The project could be an extension of a course topic or one that is independent of specific course content and could be proposed by either the instructor or the student, in either case it must be one that both agree upon.

1-3 cr.

CHEM 290 Special Topics in Chemistry

Prerequisite: Sophomore standing. Topics in chemistry that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

CHEM 312 Instrumental Analysis

Prerequisite: CHEM 209, CHEM 211, CHEM 219, CHEM 221, CHEM 322, or concurrently; or permission of the instructor. Building upon the concepts of classical quantitative analysis, the course includes the modern instrumental methods currently used for qualitative and quantitative analysis. For each major instrumental method, the fundamental interaction of energy with material samples is developed, followed by detailed examination of instrument design, operation, and application. Offered in alternate years.

3 cr.

CHEM 314 Biochemistry

Prerequisite: CHEM 210, corequisite CHEM 324. This is an examination of the chemistry of living systems with emphasis on human

biochemistry. Topics include the biosynthesis; metabolism; and function of proteins, nucleic acids, carbohydrates, and lipids. Offered in alternate years.

3 cr.

CHEM 317 Physical Chemistry I

Prerequisite: CHEM 211, CHEM 221, CHEM 327, or concurrently, MATH 235, PHYS 134, or permission of the instructor. This course is an exploration of the fundamental physical laws governing the behavior of all substances. Among the topics examined are the kinetic theory of gases, real gas behavior, the basic laws of thermodynamics, and chemical equilibria. Offered in alternate years in the fall semester.

3 cr.

CHEM 318 Physical Chemistry II

Prerequisite: CHEM 317, CHEM 327, CHEM 328, or concurrently, or permission of the instructor. A continuation of CHEM 317, this course includes a study of the behavior of liquids, the thermodynamics of solutions, phase equilibria, chemical kinetics, electrolyte behavior, and an introduction to quantum mechanics. Offered in alternate years in the spring semester.

3 cr.

CHEM 322 Instrumental Analysis Laboratory

Prerequisite: CHEM 312 or concurrently. Laboratory for CHEM 312. The instrumental methods used include ultraviolet, visible, infrared, and atomic absorption spectroscopy; nuclear magnetic resonance spectrometry; and potentiometry. Four-hour lab. Offered in alternate years.

1 cr. Laboratory fee \$50.

CHEM 324 Biochemistry Laboratory

Prerequisite: CHEM 314 or concurrently. Laboratory for CHEM 314. This course consists of laboratory exercises designed to introduce modern techniques for the separation, purification, and determination of structure and function of biological compounds. Four-hour lab. Offered in alternate years.

1 cr. Laboratory fee \$50.

CHEM 327 Physical Chemistry Laboratory I

Prerequisite: CHEM 317 or concurrently. Laboratory for CHEM 317. Emphasis is on techniques for the determination of the chemical and physical properties of materials. Four-hour lab. Offered in alternate years in the fall semester.

1 cr. Laboratory fee \$50.

CHEM 328 Physical Chemistry Laboratory II

Prerequisite: CHEM 318 or concurrently. Laboratory for CHEM 318. This is a continuation of CHEM 327. Experiments continue to emphasize techniques necessary for the determination of the chemical and physical properties of materials. Four-hour lab. Offered in alternate years in the spring semester.

1 cr. Laboratory fee \$50.

CHEM 333-334 Independent Study in Chemistry

See "Independent Study" on p. 30.

1-3 cr. Laboratory fee may be required.

CHEM 340-341 Research Projects in Chemistry

Prerequisite: CHEM 210 and CHEM 220 or CHEM 211 and CHEM 221, junior standing, a minimum GPA of 3.00, and permission of the instructor. This course builds upon the goals of CHEM 240-241 and is designed to help the student develop into a more knowledgeable and independent researcher. The student will be required to work more independently than in CHEM 240-241 and will be introduced to the research literature in chemistry. The project may be either a continuation of an earlier chemistry research project or something completely different.

1-3 cr.

CHEM 390 Special Topics in Chemistry

Prerequisite: Junior standing. Topics in chemistry that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

CHEM 402 Toxicology (Formerly ENV5 302)

Prerequisite: CHEM 314 and CHEM 324. This course provides understanding of the effects of chemical and physical agents, including environmental contaminants, on living systems. By combining the basic elements of biology, chemistry, and molecular biology, the relationships between chemicals and disease states are identified. Students learn risk assessment, the methods for determination of harmful effects, and safe handling/storage/disposal of chemicals. Offered in alternate years.

3 cr.

CHEM 410 Molecular Spectroscopy

Prerequisite: CHEM 318 or permission of the instructor. An introduction to the theory of molecular rotational, vibrational, electronic, and spin resonance spectroscopy and

applications in thermodynamics, kinetics, and the chemistry of materials.

3 cr.

CHEM 421 Inorganic Chemistry

Prerequisite: CHEM 210, CHEM 211, CHEM 220, and CHEM 221. This is a theoretical course discussing the wave mechanical concept of electronic structure and modern bonding theories including molecular orbitals. Additional topics include periodic properties, covalent and ionic compounds, advanced acid-base and solvent interactions, and the structure, properties, and reactions of coordination compounds. Offered in alternate years.

3 cr.

CHEM 425 Introduction to Polymer Science and Engineering

Prerequisite: CHEM 210 and CHEM 318, or permission of the instructor. This is an introductory survey of the organic and physical chemistry of polymer molecules. Emphasis is on methods of preparation, kinetics and mechanisms, techniques of characterization, and the details of conformations and chain dimensions. Other topics include structure-property relationships, mechanical and rheological properties, and the thermodynamics of polymers. Offered in alternate years.

3 cr.

CHEM 430 Advanced Topics

Prerequisite: CHEM 317 and CHEM 421 or concurrently. Members of the chemistry faculty offer selected topics in their areas of specialty with emphasis on advanced concepts. Topics to be covered are available from the department chair. Offered in alternate years.

1-3 cr. *Laboratory fee may be required.*

CHEM 431 Inorganic Chemistry Laboratory

Prerequisite: CHEM 421 or concurrently. Laboratory for CHEM 421. This course consists of the laboratory preparation and characterization of inorganic, coordination, and organometallic compounds. Techniques such as infrared spectroscopy and magnetic susceptibility are used to characterize compounds. The writing of scientific laboratory reports is emphasized. Four-hour laboratory. Offered in alternate years.

1 cr. *Laboratory fee \$50.*

CHEM 440 Undergraduate Research

Prerequisite: Senior standing. See "Undergraduate Research," p. 32.

1-3 cr. *Laboratory fee may be required.*

CHEM 480 Internship in Chemistry

See "Internships" on p. 31.

3 cr.

CJ Criminal Justice

(College of Arts and Sciences)

CJ 101 Introduction to Criminal Justice

This course is an overview of the U.S. criminal justice system and the interaction of its components: the police, prosecution, the court systems, the correctional systems, parole, and probation. Career opportunities in criminal justice are explored.

3 cr.

CJ 190 Special Topics in Criminal Justice

Topics in criminal justice that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

CJ 210 Criminology

Prerequisite: CJ 101 and SO 101, or permission of the instructor. This is an examination of the various categories of offenses and offenders including casual and habitual individual offenders, organized criminal enterprises, and white-collar criminals. Current theories and research, with an emphasis on understanding the causative factors and sociological implications of criminal and delinquent behavior, are included.

3 cr.

CJ 211 Corrections

Prerequisite: CJ 101 or six credit hours of sociology or psychology. This course is an empirical analysis of the main considerations of correctional behavior and practice. Topics include the prison community, problems of treatment from the viewpoints of the offender and the treatment staff, and prevention and treatment in the community at large.

3 cr.

CJ 218 Police and Society

Prerequisite: CJ 101 and SO 101. This is a study of the history of policing, particularly in the United States, to include the police role, recruiting, and police organization. This course investigates the various police missions, crime, community relations, and police accountability, and the ever increasing demands on law enforcement being made by the American public of today. Offered spring semesters.

3 cr.

CJ 220 Evidence

Prerequisite: CJ major or Forensic Chemistry major or Forensic Biology major or permission of the instructor. The purpose of this course is to provide students with a general overview of the rules of evidence as practiced in the various courts of the United States. These rules are drawn from the rules of evidence as they existed as common law and were modified by various U.S. Federal Courts. The course is designed to give students some background into the origin, usually dictated by a need, of certain rules of evidence at common law, and to view these rules as modified by contemporary courts. It has become increasingly important for all individuals working in the field of criminal justice to have some familiarity with evidentiary rules so that significant evidence may be perceived and preserved, and that criminal investigation may avoid the pitfall of obtaining evidence of little or no value in the courtroom. Offered spring semesters.

3 cr.

CJ 231 Criminal Investigation

Prerequisite: CJ 101. This is an introduction to the process of criminal investigation. Emphasis is on investigative techniques including interrogation of suspects and witnesses; use of informants; surveillance and undercover assignments; photographing, collecting, and processing physical evidence; obtaining information; and identifying and locating suspects.

3 cr.

CJ 234 The Judicial Process

Prerequisite: CJ 101 or LSOC 101 or permission of the department. This is a study of the nature of law and the courts; the State and Federal Court systems of the United States, as well as the U.S. Supreme Court and its jurisdiction, operation, and workload. The concept of judicial review is analyzed, and the courts of England, Wales, and Germany are examined for comparative purposes. Offered fall semester.

3 cr.

CJ/SO 235 Domestic Violence (Formerly CJ 343)

Prerequisite: PSY 101 or SOC 101 or CJ 101, or permission of the instructor. Domestic violence between adults is studied from an interdisciplinary perspective. The cycle of violence, dominance, and control are among the issues covered sociologically and psychologically. The legal perspective includes discussion of proactive arrest policies,

restraining orders, and anti-stalking legislation that have emerged across the United States.

3 cr.

CJ 240 Criminal Law and Procedure

Prerequisite: CJ 101. This is a study of the major felonies (murder, rape, robbery, assault, larceny, burglary, and arson), their definitions, and methods of proof. The course will examine the constitutional restrictions upon each aspect of a felony prosecution: arrest, investigation, booking, initial appearance, preliminary hearing, trial, and sentencing.

3 cr.

CJ 260 Introduction to Terrorism and Homeland Security (Formerly CJ 360)

Prerequisites: CJ 101. This course is an introduction to the study of terrorism, and to the study of the United States response to defending the homeland. It examines the criminology and the controversy of terrorism. Students review definitions and motivations for terrorism: religious, ideological, nationalistic, and ethnic terrorism; domestic and international terrorist movements; cyber, nuclear, biological, and chemical terrorism; terrorist financing; terrorism and the media; and the bureaucracy of homeland security.

3 cr.

CJ 290 Special Topics in Criminal Justice

Topics in criminal justice that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

CJ 300 Applied Analytic Methods

Prerequisite: CJ 101 or SO 101, MATH 120, any 200-level CJ or SO course, and junior standing. This course is an introduction to the concepts and techniques of a quantitative approach to the examination of social science research questions. The examples used in this course to illustrate quantitative analyses reflect practical applications within the social sciences, which include such disciplines as criminal justice, criminology, psychology, and sociology. Quantitative analyses of social science measurements will include descriptive, inferential, and predictive techniques. Besides learning the fundamentals of quantitative techniques, students will use the computer as an integral part of this course to perform analyses using computer software. Students generally will develop skills necessary to assist them in framing and answering research questions.

3 cr.

CJ/SO 301 Research Methods

Prerequisite: Junior standing, SO/CJ 300, and CJ 210 or SO 322. This course is an introduction to scientific research in the social sciences. Its primary goals are to provide students with a foundation necessary for conducting quality research and to provide students with skills necessary to analyze and interpret research data. The course highlights the logic of research designs, the relation between experimental and nonexperimental research strategies, and the application of quantitative methods. It provides experience in collecting and analyzing research data, writing, and preparing research reports. This course will discuss and contextualize the concepts and techniques of quantification in social science research, which include descriptive, univariate, parametric, nonparametric, and inferential analyses. Students will learn to use a statistical computer-software package to perform analyses on research data.
4 cr.

CJ 302 Women and the Criminal Justice System

Prerequisite: CJ 101 and SO 101 and any 200 CJ level course or permission of instructor. Junior or senior standing. This course will scrutinize the various roles that women experience with the criminal justice system. Confronting the misconception that female criminal behavior is a less serious problem than male criminal behavior; students will study phenomena of female offenders with an emphasis on examining gender specific programs to address the issue. At great cost to the individual and to society, violence against women has reached epidemic proportions and will be examined specifically. Employment availability and relative success will be contrasted with workplace issues specific to women; the working woman employed by the criminal justice system in law enforcement, the courts, and corrections will be considered. Students will learn that today's role of women and crime is poorly defined and rarely definitive.
3 cr.

CJ/SO 304 Children, Family and the State

Prerequisite: CJ 101 and SO 101 and any 200 CJ level course or permission of instructor. This is a critical look at the policy, the theory, and the practice of state intervention into families on behalf of children. The study involves a review of the legal theory underlying child protective services, an explanation of the relevant federal and state laws, an investigation of the various types of state involvement with families, an

exploration of the role of social workers and departments of social services, and a practical look into how the legal system deals with families and children. Foster care and child treatment by the system will be explored.
3 cr.

CJ/SO 306 Disability and Mental Health Issues in Criminal Justice

Prerequisite: CJ 101 and SO 101 and any CJ 200 level course. This course will explore contemporary issues surrounding criminal justice response to persons having mental, cognitive, and psychiatric disabilities. Changes in the legal code governing patient rights, affirming the right of persons with mental illness to live in the community, in addition to deinstitutionalization in the 1960s set the stage for increased criminal justice involvement. Approximately 54 million Americans live with a wide variety of physical, cognitive, and emotional disabilities. The American with Disabilities Act (1994) entitles people with disabilities to the same services as provided to others. ADA application to criminal justice policy will be addressed.
3 cr.

CJ 313 Criminal Justice Interviewing and Interrogation

Prerequisite: PSY 101 or SO 101 or CJ 101, and any 200 level CJ courses, or permission of the instructor. This course focuses on the art of inquiry and persuasion. The aim of the course is to complement standard techniques of communication while offering options for eliciting information. Interviewing procedures for obtaining statements from children and difficult adult populations are explored. Emphasis is on investigative methodologies consistent with federal and state constitutional principles.
3 cr.

CJ 320 Probation and Parole

Prerequisite: CJ 101 and any 200-level CJ. This course is an analysis of both past and present-day systems for probation and parole, an examination of state local referral systems of probation and parole, and an introduction to current innovation within the field. Topics include probation and parole in the United States, intensive supervision programs, the role of the probation and parole officer, and substance abuse treatment methods.
3 cr.

CJ 325 Forensic Science

Prerequisite: CJ 231 and CHEM 101. This is a study of scientific principles applied to

the investigation and prosecution of crime. Topics are drawn from biology, chemistry, and physics. Offered spring semesters.
3 cr.

CJ 333-334 Independent Study in Criminal Justice

See "Independent Study" on p. 30.
1-3 cr.

CJ 340 Ethical Decision-Making

Prerequisite: CJ 101 and any 200-level CJ. This course examines the major philosophical points of ethical theories and the decision process. Classical and modern viewpoints are studied in an attempt to gain a better understanding of the major social issues in today's world. Cultural implications are addressed and students gain a better understanding of their values and their personal philosophy.
3 cr.

CJ 341 Constitutional Issues in Criminal Justice

Prerequisite: CJ 101, POSC 102 and any 200-level CJ course, and junior standing, or permission of the instructor. This course will explore the constitutional issues as they relate to the police and corrections. Major areas of interest are due process and state and federal liability law as these concepts relate to the law enforcement.
3 cr.

CJ 342 Juvenile Justice

Prerequisite: CJ 101 plus any 200-level CJ course or LSOC 101 alone. This course focuses on the history, causes, behavior, laws, and treatment of juveniles. It includes the criminal justice system, the process within the system, court decisions, and alternatives to incarceration. Where possible, on-site locations are visited. An in-depth perspective of juvenile gangs, drugs, and crime is included.
3 cr.

CJ 344 Police Functions and Community Policing

Prerequisite: CJ 101, any 200-level course, and junior standing. This course is designed to provide an in-depth understanding of the new organizational strategy of community policing. It traces the development of the theory of community policing from its beginnings at Michigan State University to its present application in the major urban areas of America. It examines the new underlying assumptions as to the place and function of police in society and how these theories are being realized in daily operations. It

investigates new ways of solving community problems and develops an appreciation of the expanded responsibilities of the community-policing officer. Methods to assist experienced as well as new officers to develop problem-solving based approaches to the deliverance of police services are explored.
3 cr.

CJ 345 Stress Reaction and Management of Police Personnel

Prerequisite: CJ 101, any 200-level course, and junior standing. The focus of this course is upon the stress that is inherent in police work, which results not only from the danger involved, but from bureaucratic frustration and public pressure and how police management at each level of command can anticipate, identify, and respond to stress. The course examines in-depth the known effects of traumatic job-related experiences as well as the strains resulting from the ordinary demands of the job both on the street, in the office, and in the family. Students then examine the consequences of stress both on the individual and the organization such as job and unit performance, its effect on appropriate police behavior, police corruption, brutality, inappropriate treatment of the public, and its effect on the various career stages, early and advanced. The course develops stress intervention models tailored to the various command levels. Students are required to examine their own methods of coping with stress and are encouraged to assess its effect on their own career plans.
3 cr.

CJ 346 Supervision of Police Personnel

Prerequisite: CJ 101, any 200-level course, junior standing. This course is an overview of police supervision, particularly as it relates to the first line supervisor and the problems presented by the modern police environment and an increasingly complex legal world. The role of the supervisor is examined with respect to the general problems of personnel selection and development and with respect to the specific problems imposed by state and federal laws such as the Fair Labor Standards Act, the Family Medical Leave Act, Americans with Disabilities Act, and public labor law and collective bargaining as they apply to the daily operations of law enforcement units. The areas of employee discipline, the requirements of due process, handling of complaints against officers by the public, communication,

adequate training, civil liability consideration, and performance appraisals are also covered.
3 cr.

CJ 347 Police Internal Investigation

Prerequisite: CJ 101, any 200-level course, and junior standing. This course presents students with the current principles and expertise whereby the police investigate themselves. It provides a thorough understanding of the internal investigative function together with an appreciation of different department methods, policies, present laws, and recommended procedures utilized by present administrations. The course addresses the handling of complaints of police misconduct by the public, discoveries of misconduct, investigation and disposition by administrative action, discipline, dismissal, review board action, civil suit, and criminal prosecution. It examines current strategies in the challenging area of self-investigation, the daily operations of the internal affairs unit, the problems of secrecy, security, and unit morale, and the crucial issue of public trust. The course begins with a review of the evolution of police professionalism, problems of police corruption, and then considers current response. Students are given a problem of misconduct and are required to design and conduct an internal investigation and present findings in compliance with appropriate legal procedures and administrative requirements.
3 cr.

CJ 348 Introduction to Cyber Crimes

Prerequisite: CJ 101, or CS/IT 101, plus any 200 level course, or permission of instructor. This course examines crime which targets computers, crimes committed by use of computers, and forms of evidence stored on computers. Forms and impact of cyber crime are studied within the context of societal harm and criminal justice response. Designed to familiarize students with the available and emerging State and Federal Law, the class will investigate legal limitations in the investigation and prosecution of cyber crime.
3 cr.

CJ/SO 349 Multicultural Policing

Prerequisite: CJ 101 or SO 101 and junior standing or permission of the instructor. This course is designed to familiarize the student with the “theoretical and practical” application of peace keeping in a multicultural setting. Students will explore the issues of “diversity, cultural understanding, and communication” facing the law enforcement community in a

multicultural environment. Particular attention will be given to the concept of “cross-cultural” law enforcement for diverse communities.
3 cr.

CJ 350 Security Management

Prerequisite: CJ 101, any 200-level course, and junior standing or permission of the instructor. The purpose of this course is to provide an understanding of the interrelationship between physical security and crime prevention including a study of the evolution of the security profession in the United States. It covers proper planning and security design in industry, physical security in business, and how to reduce loss and threat of loss, from both the smallest business to the largest of international corporate enterprises. This course seeks to introduce students to the career opportunities in the enormous field of private security as well as the role law enforcement officers play in the development of home and business security in their particular areas. Students are introduced to the concepts, techniques, and technologies now being developed in the areas of physical security, computer security, privacy of personnel information management, safeguarding proprietary information, retail security, facility security design, access control and systems integration, executive protection, and the application of these to the public sector, utilities, public buildings, and institutions.
3 cr.

CJ 361 Origins of Terrorism

Prerequisites: CJ 260. This course focuses on the psychological sources of terrorism. It investigates social, economic, political, and religious systems of beliefs that have formed the basis of terrorist acts carried out by individuals and groups. Students learn the psycho-logic of terrorist behavior: how do terrorists think and which psychological mechanisms motivate and enable them to behave in ways that violate social norms and moral precepts.
3 cr.

CJ 362 Counter-terrorism

Prerequisite: CJ 260. This course looks at the various practices, trends, and trade-crafts of local, state, and federal agencies used against actual or perceived threats of terrorist activities. Specifically, students examine surveillance strategies, military and law enforcement responsibilities, and seizure and interrogation tactics in carrying out a war on terrorism.
3 cr.

CJ 363 Weapons of Mass Destructions

Prerequisites: CJ 260. This course introduces and explains how the use of weapons of mass destruction by terrorists and rogue states could give them attack advantages over military, local, and federal law enforcement agencies. Today's danger of weapons of mass destruction comes mostly from the possible use of nuclear, biological, or chemical (NBC) weapons. In this course, students examine "how to respond to" and "how to deal with" NBC attacks. The course distinguishes facts from falsehoods about NBC weaponry.

3 cr.

CJ 364 Terrorism and Business

Prerequisite: CJ 260. This course addresses how corporate America and how international industry constitutes prime targets for terrorist attacks. It integrates business and criminal justice perspectives, while having students analyze the costs of terrorist attacks against businesses in terms of economic indicators and financial markets at the local, national, and transnational levels. Students also explore how business confronts terrorism: risks and responses.

3 cr.

CJ 390-395 Special Topics in Criminal Justice

Topics in criminal justice that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

CJ 396 Seminar of Current Issues in Corrections

Prerequisite: CJ 211 and senior standing or permission of the instructor. This seminar looks at current trends in correctional management as they relate to issues including overcrowding, classification, inmate programs, health issues, racial and gender issues, constitutional rights of the confined, and the growing trend of privatization of prisons. An underlying theme is the impact of current management trends on the work environment faced daily by thousands of correctional staff.

3 cr.

CJ 397 Alternative Sentencing

Prerequisite: Junior standing, CJ major, or permission of instructor. This course will examine alternative sentencing practices and programs from its beginning to our present day correctional system. The course will examine various models responsible for the evolution of alternative sanction in the United States. The course will focus on new technologies

and career opportunities in the field, including sex offender programs, intensive supervision programs, day reporting, substance abuse treatment programs, and electronic monitoring systems.

3 cr.

CJ 398 Treating the Offender in the Community

Prerequisite: CJ 101 and any 200 level CJ course. This course will provide the student with various treatment options for offenders in the community. Topics include gender specific treatment, cognitive behavioral therapy, mental health programs, and substance abuse treatment programs. Students will review research on the effectiveness of the treatment programs used with offender populations.

3 cr.

CJ 405 Organized Crime

Prerequisite: CJ 220, CJ 231, and senior standing or permission of instructor. This course will provide an overview of organized crime in the United States, its history, and modern influences. The student will explore traditional organized crime (the mafia), as well as other forms of organized crime (ethnic groups, biker gangs, etc.).

3 cr.

CJ 450 Senior Seminar

Prerequisite: CJ major and senior standing. This course includes a basic review of general principles of criminal justice. Each student will be required to do extensive independent research and produce a research paper.

3 cr.

CJ 480-481 Internship in Criminal Justice

See "Internships" on p. 31.

3 cr.

CL Colloquia**(College of Arts and Sciences)****CL 190 Special Topics**

Topics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1 cr.

CL 200-201 Colloquium

Topics that are not specific to departments and that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

COMM Communication

(College of Arts and Sciences)

COMM 100 Principles of Communication (Formerly COMM 201)

This course provides an introduction to basic theories of interpersonal, small group, and public communication. The course explores effective listening, dyadic dynamics, nonverbal communication, verbal communication, and similarities and differences between speaking and writing. Offered every semester.

3 cr.

COMM 102 Public Speaking (Formerly COMM 202)

This course is designed to develop students' skills in researching, composing, and presenting speeches in public, and in adapting principles of public speaking in different situations and contexts. Offered every semester.

3 cr.

COMM 190 Special Topics in Communication

Topics in communication that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

COMM 205 Mass Communication

This course offers an introduction to the structure and function of mass communication, including print, film, and telecommunications. The course addresses the history, purpose, problems, and power of the mass media. This course satisfies the Behavioral/Social Science requirement of the College of Arts and Sciences. Offered every semester.

3 cr.

COMM 206 Introduction to Communication Research

Prerequisite: COMM 100 or the equivalent. This course introduces students to research methods in communication, addressing such issues as the reliability of information sources, measurement factors and techniques, qualitative vs. quantitative methodologies, experimental research, and ethical considerations.

3 cr.

COMM 241 Video Production I: Introduction to Digital Editing

Prerequisite: COMM 100 or the equivalent. This course focuses on the technical and aesthetic aspects of digital audio and video editing. Classes consist of instruction in and practice of the technical of digital editing software as well

as elements of style. Students will also learn basic video camera operation and shooting techniques.

3 cr.

COMM 250 Video Production II

Prerequisite: Sophomore standing and COMM 241 or permission of instructor. This course provides an introduction to lighting, sound design, videotaping, editing, and script development.

3 cr. Equipment Fee \$100.

COMM 251 TV Broadcasting

Prerequisite: COMM 241 or concurrent and sophomore standing. This course offers an introduction to writing and presenting TV news stories and commercials.

3 cr. Equipment Fee \$100.

COMM 260 Web Design

Prerequisite: COMM 100 or the equivalent. Using industry-standard software such as Macromedia Dreamweaver for HTML editing and Macromedia Fireworks for image manipulation, students will create, test, evaluate, and critique class work as well as existing web pages. Students will learn the fundamentals of web page design: Research, Typography, Contrast, Layout, Grid Systems, Identity, and Usability. Students will obtain a working knowledge of HTML, Cascading Style Sheets (CSS), and JavaScript.

3 cr. Equipment Fee \$100.

COMM 280 Organizational Communication

Prerequisite: COMM 100 or the equivalent. This course is designed to explore the communication dynamics, effective communication processes, and misunderstandings that may occur at all levels of an organization. Students will learn about the evolution of different theories about what constitutes an effective organizational structure; assess the roles, rights, and responsibilities of individuals in a variety of institutional positions; and consider the relationship among organizational norms, organizational structure, and interpersonal communication practices. They will also explore how organizational cultures are created and altered in response to internal and external stimuli.

3 cr.

COMM 285 Introduction to Public Relations

Prerequisites: Sophomore standing. Students in this course will study several types of communication that are common in business and professional environments. Topics include professional presentations, techniques

of interviewing, questionnaire construction, small group dynamics, symposium planning, and presentation. Offered every semester.
3 cr.

COMM 290 Special Topics in Communication

Prerequisite: COMM 100 or permission of instructor. Topics in communication that are not offered on a regular basis are examined. This course may be repeated for credit if the topic varies.
1-3 cr.

COMM 300 Communication Theory

Prerequisite: COMM 206. This course describes the purpose and significance of theories of intrapersonal, interpersonal, small group, public, intercultural, professional, and mass communication, highlighting the distinctions among different theoretical paradigms within these areas. It also enables students to apply communication theories to contemporary issues within the communication disciplines as well as everyday life.
3 cr.

COMM 315 Language in Communication

Prerequisite: COMM 100 and COMM 102 or equivalent and junior standing. This course examines the ways in which language is used and misused as a communication tool, as well as a variety of language-based communication issues, including the cultural, political, rhetorical, and/or professional implications of word choice. Students will also consider the role of language in persuasion and in the cultivation and maintenance of social power.
3 cr.

COMM 320 Small Group Communication

Prerequisite: COMM 100 or 201 and junior standing. Students will study several types of communication involving small groups that are common in business and professional environments. Students will consider how leaders and followers emerge in small groups; what factors contribute to or detract from effective small group dynamics; and what roles different individuals may play in small groups.
3 cr.

COMM 321 Nonverbal Communication

Prerequisite: COMM 100 or COMM 201 and junior standing or permission of instructor. This course explores all of the channels of nonverbal communication, analyzing individual, cultural, and contextual variables that affect it.
3 cr.

COMM 324 Media Industries, Government, and Society

Prerequisite: COMM 100 and COMM 205. This course explores the relationship among media industries, government, and society in the United States. The course will provide a brief history of media regulation and deregulation, examine the impact of new media (cable, satellites, and the Internet) on old media (broadcast television and radio), consider how to define and to operate media in the public interest, and scrutinize the relationship among corporate interests, government interests, consumer interests, and citizen interests. Students will also examine the role of news media and entertainment media—as well as news media as entertainment media—and the effects of media mergers on media technologies, the government, and U.S. culture.
3 cr.

COMM 326 Race, Gender, and Ethnicity in the Media

Prerequisite: COMM 100, COMM 205, and two courses in English writing with grades of “C” or better. This course examines the media as cultural artifacts that provide the images and representations that help shape our identities, beliefs, and values. Special attention is paid to questions of race, gender, and ethnicity. Students investigate such forms of communication as advertising, popular music, popular fiction, television, film, and the Internet. This course satisfies the Behavioral/Social Science requirement of the College of Arts and Sciences.
3 cr.

COMM 333-334 Independent Study in Communication

See “Independent Study” on p. 30
1-3 cr.

COMM 340 Business Communication

Prerequisite: Junior standing and two courses in English writing with grades of “C” or better. This course explores the principles of effective professional writing. The course requires extensive practice in planning; organizing; writing; revising and editing; and analyzing memoranda, executive summaries, letters, reports, speeches, and other forms of writing commonly found in business and industry contexts. Students will be expected to focus on grammatical accuracy and other technical elements of English writing, as well as using

concise and precise prose. Oral presentations will also be expected. Offered every semester.
3 cr.

COMM 348 Intercultural Communication

Prerequisite: COMM 100 or equivalent and junior standing. This course promotes the appreciation and understanding of other cultures by instructing students in the use of cross-cultural communication skills. Activities include discussion, guest lectures, simulations, case studies, role-playing, and presentations. This course satisfies the Behavioral/Social Science requirement of the College of Arts and Sciences.
3 cr.

COMM 352 TV Broadcasting II

Prerequisite: COMM 251. This course focuses on advanced TV news reporting with instruction and practice in reporting, writing, and producing in-depth broadcast news stories. Emphasis is placed on investigative techniques, interviewing, writing for broadcast news, photography, voice-overs, and on-the-air talent techniques for production.
3 cr. *Equipment Fee \$100.*

COMM 360/JRNL 360 Sportswriting

Prerequisite: JRNL 101 and two courses in English writing with grades of “C” or better. This course introduces students to the craft of sportswriting. Beginning with a discussion of how to approach writing in general, the course focuses principally on analyzing models of successful sportswriting and developing skills in producing sportswriting. Students will be expected to read copiously and critically and to write (and revise) several short assignments as well as one research-based project. This course is cross-listed as JRNL 360.
3 cr.

COMM 371/JRNL 370 Advanced Journalism

Prerequisite: JRNL 250, COMM 241, and/or permission of instructor. This course provides students with professional radio reporting opportunities. It focuses on radio news reporting with instruction and real-life applications in developing, researching, writing, and producing broadcast news stories to be aired on National Public Radio station WAMC. Students receive on-the-air talent techniques and one-on-one coaching for professional voice-over productions. Story ideas are assigned by the instructor, the WAMC news director, and news producers; students must also generate his/her own story

proposals. This course is cross-listed as JRNL 370.
3 cr.

COMM 390 Special Topics in Communication

Prerequisite: Junior standing and permission of instructor. Topics offered depend on student interests as well as particular interests of instructors. This course may be repeated for credit if the topic varies.
1-3 cr.

COMM 480-481 Internship in Communication

See “Internships” on p. 31.
1-3 cr.

COMM 490 Seminar in Media Theory and Journalism

Prerequisite: Graduating communication seniors or permission of instructor and COMM 300. This capstone course is designed to enable students in media and journalism concentrations to integrate the theoretical and practical knowledge from their previous coursework into a cohesive whole. Students will examine the social, political, cultural, and economic contexts of mass media and journalism; probe a variety of theoretical frameworks for understanding mass media and journalism; and design and implement a substantial research project that draws on those contexts and frameworks.
3 cr.

COMM 491 Seminar in Professional Communication and Public Relations

Prerequisite: Graduating communication seniors or permission of instructor and COMM 300. This capstone course is designed to enable students in professional and public relations concentrations to integrate the theoretical and practical knowledge from their previous coursework into a cohesive whole. Students will explore current issues and factors affecting communication within and across profit and nonprofit corporations; consider theoretical approaches designed to illuminate interpersonal and professional communication dynamics; and design and implement a significant research project related to their chosen field of study.
3 cr.

CPE Computer Engineering

(College of Engineering)

CPE 271 Digital Design

This is an introductory course that gives students the ability to analyze and design digital circuits. Students become knowledgeable about the number systems used in computers and digital circuits. They learn to simplify Boolean algebraic expressions that describe circuit behavior. Students learn to design combinational and sequential circuits using basic gates and flip-flops, as well as larger functional units such as decoders, counters, and multiplexers. Students are introduced to the hardware description language VHDL, and learn to describe simple circuits with that language. Laboratory work includes designing, building, and testing combinational and sequential circuits using available parts. Students will also use VHDL to program programmable logic devices. The methods for assessing student learning in the course are quizzes, tests, and lab reports. Three class hours, two lab hours.

4 cr.

CPE 305 Firmware Design for Embedded Systems

Prerequisite: CPE 271, EE 285, and ENGR 105 or equivalent. This is an introductory course in the design and understanding of firmware for real-time embedded systems. After completing this course, students understand the issues involved with partitioning and managing a computation that has real-time performance constraints. Students are introduced to modeling the behavior of a system using UML. Approaches to the design of software architecture of embedded systems is presented. Students design an appropriate real-time clock scheduling mechanism and use it for task management that allows control of external devices and interpretation of data from external sensors. Students learn to use C++ for designing real-time device drivers that interface to a variety of hardware subsystems. This includes keypads, LCD displays, Analog to Digital Converters (ADC), networked (I2C and SPI) sensors as well as Stepper motors. Students learn to debug a real-time system through a semester long design project.

3 cr.

CPE 310 Machine and Assembly Language

Prerequisite: CPE 271 and any programming language. This is an introductory course in low-level computer programming. Students

learn skills in writing programs using the fundamental operations that electronic circuits on a processor can perform. IBM PCs and clones are used as example machines for running and testing programs. Students learn assembly language instructions, different addressing modes, and their use in different situations. They use basic programming constructs such as branching and loop control. Students learn to test and debug programs. The methods of assessing student learning in this course are programming assignments, quizzes, and tests. Two class hours, two lab hours.

3 cr.

CPE 355 Real Time Embedded Kernels

Prerequisites: CPE 305 or equivalent, CPE 310 or equivalent. This is an introductory course in the theory, design, and use of a real-time kernel for an embedded system. A real-time kernel is the control software that manages the time resources of a microprocessor. Students learn the basic structure and services of a kernel. Topics include dispatching, hierarchical scheduling, priority-driven scheduling, real-time schedulers (including non-preemptive and preemptive), scheduling groups, and multitasking. Students also learn to utilize tasks to describe multiple threads of execution in a computation. Students study methods to manage and control task execution as well as other kernel services. The primary methods of assessing student learning are homework assignments, quizzes, exams, and a term project.

3 cr.

CPE 360 Microprocessor Systems and Design

Prerequisite: CPE 310. This is an introductory course in the theory and design of modern microprocessor systems. Students become aware of the basic principles of systems design, including hardware, software, and systems integration. The Intel 8088 processor and support chips are utilized in the design, fabrication, and test of a complete working system. Students design memory mapped systems which include non-volatile (EPROM, FLASH, etc.) and volatile (RAM) memory. In addition, students also design I/O mapped subsystems, supporting both parallel (8825) and serial devices (8251). Students become aware of bus timing and loading considerations. To facilitate student understanding, a semester long, incremental design project is employed. As a result of building their own embedded

system, the student will understand the design, construction, and test issues presented by any embedded computer system. The methods of assessing student learning in the course include quizzes, exams, lab reports, and lab demonstrations. Three class hours, three lab hours.

4 cr.

Note: Courses that are numbered 4xx may also be numbered 5xx. These 5xx numbered courses are available to entry level graduate students. Courses designated at the 500 level are generally provided for graduate students who may require a stronger foundation in a subject area before proceeding to 600 level courses. Separate syllabi are provided for each section that reflects the differences in expectations for seniors (400 level) and entry level graduate (500 level) students. Graduate students can expect additional journal research and projects.

CPE 420 Computer Architecture

Prerequisite: CPE 310 and CPE 271. This is a senior level course in the theory and design of modern computer architectures. Students learn the fundamental organization of processors, controllers, memory, and communication links as well as the issues involved with internal data representation. They understand the close correlation between registers, bus interconnections, and instruction sets. Students gain skills in computer performance prediction by analyzing advanced features including instruction pipelines, arithmetic circuits or co-processors, cache, and virtual memory. After successfully completing this course students understand the issues involved with instruction set design and implementation and are able to evaluate new architectures. The methods of assessing student learning in the course are homework assignments, a term project, and exams.

3 cr.

CPE 425/CPE 525 Software Engineering

Prerequisite: A structured programming language. This is a first year graduate course in software system design fundamentals. Students learn the approaches to designing medium to large-scale systems. After completing this course, students understand lifecycle issues in modern software design. They learn a variety of software design methodologies including structured design, top down design, bottom up design, and incremental design and are introduced to object oriented design. Students participate in a semester-long team project with

design documentation delivered and presented at specified design review milestones. The methods of assessing student learning in the course are homework assignments, a research paper, and a semester long design project that culminates in a formal presentation.

3 cr.

CPE 427 Computer Engineering Laboratory

Prerequisite: EE 323 and CPE 360. Corequisite: CPE 420. A laboratory emphasizing the integration of advanced techniques in the design and implementation of an embedded microcontroller. Topics include embedded systems design and development using an EPROM based, industry standard microcontroller, interfacing serial and parallel I/O, PLD design using VHDL, Analog to Digital conversion (ADC), and Timers as well as interrupt structures. The course provides students the opportunity to design a control and data acquisition system for the Solar Vehicle interdisciplinary project. Students design, construct, and test an Intel 8052 real-time system. The embedded computer is used to acquire performance data from the solar vehicle. Sensors are interfaced to the ADC and data are later uploaded to a workstation for analysis. Students learn about the challenges of system's integration by participating in a solar vehicle race with team members from electrical and mechanical engineering. One class hour, one three hour lab.

2 cr.

CPE 435/CPE 535 Requirements Analysis

Prerequisite: CPE 425/525 or equivalent. This course addresses the issues associated with eliciting, recording, and managing requirements. Poor requirements processes are a leading cause of project failure. Engineers must have the skills and tools to effectively collect, verify, validate, and implement requirements in order to improve the success rates of their projects. Major models of requirements will be examined. Methods of detecting ambiguity will be discussed and practiced. A comprehensive survey of various methods of eliciting, recording, and verifying requirements will be considered. Additional topics include: writing requirements, formal specification analysis, and formal notations. The primary methods of assessing student learning are homework assignments, a presentation, a group project, a midterm, and final exam.

3 cr.

CPE 438/CPE 538 Software Quality Assurance

Prerequisite: CPE 425/525 or equivalent. This course addresses the issues associated with software quality. This course provides an in-depth exploration of designing, measuring, and maintaining the quality of a software artifact. Many software engineering topics are brought to bear on a systematic approach to ensure the quality delivered software (Software Quality Assurance, SQA). The student learns the issues associated with verification and validation, testing, audits, review of software artifacts, configuration management, and process improvement. The primary methods of assessing student learning are homework assignments, a presentation, a group project, a midterm, and final exam.

3 cr.

CPE 442/CPE 542 Verification and Validation

Prerequisite: CPE 425/525 or equivalent. This course introduces the student to software testing strategies and techniques. The goal is to provide a framework for the testing of the developed software in a series of well-planned steps. The cost impact of testing is illustrated in terms of effort, time, and resources. Students learn the issues associated with program proving, code inspection, test coverage, code reviews, unit-level testing, and system level testing. Students are exposed to the difficulty and costs of some types of analysis and testing. These are examined in addition to the need for automation of tedious tasks. The benefits of automated test are explored as well as the associated costs. The advantages of regression tests are discussed. The primary methods of assessing student learning are homework assignments, a presentation, a group project, a midterm, and final exam.

3 cr.

CPE 445/CPE 545 Computer Graphics Software

Prerequisite: CPE 310 and ENGR 105 or equivalent. This is an introductory course in computer graphics. Participants in the course learn the hardware organization of graphic display system in an IBM PC for both alphanumeric and bit mapped graphics. They write programs in C and assembly language to control, query, optimize, and write to and read from graphic controller chips in order to use the full capability of the display hardware. They write programs to generate and manipulate alphanumeric display; read and write to display memory to generate points, lines, and circles; read and write to the color tables; and

control the start address to allow panning and scrolling and animation. An individual project is required. The assessment of student learning in this course is based on a writing program as homework, supervised laboratory work, and the quality of the project.

3 cr.

CPE 450/CPE 550 Topics in Compiler Design Theory

Prerequisite: ENGR 105 or equivalent and CPE 310. This is a course in the theory and design of modern programming languages. Students learn the basic elements of a language translator (compiler); lexical analysis, parsing, code generation, symbol table management, type checking, scope resolution, code optimization, and error recovery. They also learn to write regular expressions and context free grammars and understand the separate phases of compilation and the issues involved in designing a medium sized translator. To facilitate student understanding, a semester-long, incremental design project is employed. As a result of building their own compiler, students learn the operation and messages presented by any modern commercial translator. The methods of assessing student learning in the course are homework assignments, quizzes, an exam, a research paper, and a semester long design project that culminates in a formal presentation.

3 cr.

CPE 462/CPE 562 VHDL: Simulation and Synthesis

Prerequisite: CPE 271 or equivalent. This is an introductory course in VHDL (very large scale integrated circuit hardware description language). Students will learn enough about the language to describe most digital hardware, including processors, interface circuits, etc. Students will learn how to use a simulator program to verify the correctness of their description. Students will synthesize programmable devices using VHDL. Several simulation exercises and some synthesis projects are included.

3 cr.

CPE 470 Real-time Embedded Controls

Prerequisite: CPE 355 or concurrent or permission of the instructor. This is an introductory course in the design and understanding of embedded micro-controllers in a time critical control application. Students learn the fundamentals of discrete systems modeling, analysis, and design. Students implement control algorithms on an embedded

processor in the C language. Control issues associated with fixed-point processors, limited bandwidth I/O channels, and limited precision interfaces are studied. The methods for assessing student learning in the course are homework assignments, exams, and a design project.

3 cr.

CPE 475/CPE 575 Operating Systems

Prerequisite: CPE 355 and CPE 420. This is a first course in operating system theory and design. After successfully completing this course, students understand concurrent processes, process communication, resource allocation, and resource scheduling. In addition, they learn how to apply basic queuing models to predict real-time performance of an operating system. Students also learn the fundamentals of distributed (and network) operating systems. They also understand the interaction between operating system design and computer architectures. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, two exams, and a term project.

3 cr.

CPE 480 Internship in Computer Engineering

See "Internships" on p. 31.

3 cr.

CPE 485/CPE 585 Computer Networks

Prerequisite: ENGR 212 or IE 212 or equivalent. This is a first course on communication networks. After completing this course, students understand the structure and issues of network design using the ISO Seven Layer model as a reference. They understand the limitations placed on specific network architectures from the physical (hardware) layer up through the upper layers (transport). The problems of error detection and recovery are also discussed. Students learn to use delay models to predict network specific performance measures and understand the limitations of these models. The course covers issues associated with routing and flow control. The methods of assessing student learning in the course are homework assignments, quizzes, three exams, and research paper with a formal presentation.

3 cr.

CPE 490 Special Topics in Computer Engineering

This is a study of an advanced topic in engineering of special interest to electrical engineering majors, but not offered on a

regular basis. The course may be repeated for credit if the topic varies.

3 cr.

CS Computer Science

(College of Arts and Sciences)

CS/IT 101 Introduction to Computing

This course is designed to introduce the student to the areas of computer science and information technology in order to help them make an informed choice about which career path they would like to follow. Topics include the history of computing, how computers work, the elements of computer science, the elements of information technology, the basics of computer programming, and the place of both areas in today's world. Programming basics will be explored using the Python programming language. Short projects, a research paper, presentations and exams will be used to assess the student's learning.

4 cr. *Three hours of lecture and three hours of lab per week.*

CS 102 Introduction to Programming

Covers problem solving with programming in greater detail. Students learn to apply fundamental imperative, procedural constructs to solve common programming problems, as well as the beginnings of object oriented programming (e.g., defining classes, instantiating objects, using objects, and using application programmer's interfaces). Students learn to design and develop small programs using a procedural, imperative programming language and appropriate analysis, design, and testing techniques. One cannot receive credit for both CS 102 and BIS 300. This course is equivalent to IT 102. Offered in the spring semester.

4 cr., *3 hours of lecture and 3 hours of lab per week.*

CS 131 Computing for the Arts and Sciences

This is an introduction to computer systems, primarily from the user's viewpoint. Topics include hardware, software, vocabulary, and applications. The course culminates in a final project utilizing various software packages to research, analyze, and report on a topic of the student's choice. Not open to those who have completed BIS 101, CS 101, or IT 101. Offered fall and spring semesters.

3 cr.

CS 133 Introduction to Informatics

Prerequisite: None, not open to those who have taken BIS 101, CS 101, CS 102, IT 101, or IT 102. Informatics is the integration of computing and information management and its application in society. Frequently informatics focuses on applying information technology and tools to information from a discipline such as biology (bioinformatics), healthcare (healthcare informatics), nursing (nursing informatics), etc. This course will focus on how information technology can be used to organize and manage information in society. A project will be used to demonstrate student facility in informatics and students will present their work. Offered fall and spring semesters
3 cr.

CS 170 Technology in Mathematics

This course is an introduction to various computer software packages that can be useful for doing research, teaching, and working in the business world. Students will receive hands-on training in software packages including, but not limited to: computer algebra systems (Mathematica, Maple, or Matlab), Office products (Excel and Access), statistics packages (SAS and Minitab), and specialty math software (LaTeX). Offered in the fall semester.
3 cr.

CS 190 Special Topics in Computer Science

Topics in computer science that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.
1 cr.

CS 201 Data Structures and Algorithms I

Prerequisite: CS 102 or IT 102. This course continues the introduction to computer programming begun in CS 102. This course covers the concepts of object-oriented software development and design, linear data structures, and common algorithms related to linear structures. Topics include inheritance, polymorphism, encapsulation, abstract data types (ADTs), functional and structural recursion, use, and implementation of lists (with array and linked list implementations), collections. Offered in the fall semester.
4 cr., 3 hours of lecture and 3 hours of lab per week.

CS 202 Data Structures and Algorithms II

Prerequisite: CS 201. This course continues the coverage of linear and non-linear data structures and related algorithms. Topics include stacks, queues, hash tables, common trees and tree algorithms (e.g., heaps, AVL trees,

red-black trees, B-trees, and splay trees), graph representations and graph traversals (e.g., depth-first and breadth-first traversals), and common algorithms related to these structures. Offered in the spring semester.
4 cr., 3 hours of lecture and 3 hours of lab per week.

CS 290 Special Topics in Computer Science

Prerequisite: Permission of the instructor. Topics in computer science that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.
1-3 cr.

CS 300 Computer Forensics, Tools and Processes

Prerequisite: CS 101 or IT 101 and junior or senior standing or instructor's permission. In this course, we will present methods to properly conduct a computer forensics investigation. This course will prepare the students to obtain and analyze digital evidence. We will also examine various computer forensics techniques that can be used in solving computer crimes. The course will cover topics such as file structures, data recovery, email, and network investigations. Students should have a working knowledge of hardware and operating systems to maximize their success on projects and exercises throughout the text. Students also need to know how to use a computer from the command line and how to use today's popular operating systems such as Windows, Unix/Linux, and their related hardware.
3 cr.

CS 310 Computer Crime Scene Investigation

Prerequisite: CS 101 or IT 101 or IT 150 or CS 183 or permission of instructor. The increase in the number of crimes committed using computers has resulted in a need for computer forensic specialists who are able to gather information and computer evidence to be able to reconstruct the crime committed using a computer in order to solve it. In this course, we will study how to seize, recover, and preserve computer evidence and what leads this evidence provides. We will review various ways in which, using gathered data, computer forensic experts can reconstruct computer crimes and events. Students will have hands-on opportunities to become familiar with some of the current available forensic tools.
3 cr.

CS 330 Web Applications Development

Prerequisite: CS 202. This course covers the design and implementation of client/server

and multi-tier applications using tools for web page design and web server configuration, including CGI scripts, Servlets, JSP, XML, and database connectivity. Offered in alternate fall semesters.

3 cr.

CS 333-334 Independent Study in Computer Science

See "Independent Study" on p. 30.

1-3 cr.

CS 340 Computer Graphics: Principles and Applications

Prerequisite: CS 202 or CPE 305 or the equivalent or permission of instructor. This course focuses on rendering the synthesis of realistic 3D images, the major concern in computer graphics today. Following a study of light, color, and shading, each student develops a simple program to generate images using ray-tracing, the most widely used photo-realistic rendering technique. Additional topics include 2D and 3D transformations, generation of 2D images on a screen, use of a simple 2D graphics package, and graphical user interfaces. Offered in alternate fall semesters.

3 cr.

CS 351 Organization of Programming Languages

Prerequisite: CS 202 or permission of the instructor. This is an examination of the development of programming languages. The emphasis is on the interaction between classes of languages and their associated programming paradigms. Topics include imperative, functional logic, and object-oriented languages. Offered in alternate semesters.

3 cr.

CS 360 Data Communication Systems and Networks

Prerequisite: Junior standing in CS or BIS or permission of instructor. This is a study of the concepts and terminology of data communications, network design, and distributed information systems. Major topics include communication concepts, network architecture, data communications software and hardware, and the impact of communications technology on information systems. This course is equivalent to BIS 413. Offered in alternate spring semesters.

3 cr.

CS 361 Network Administration Lab

Corequisite: CS 360. Students will gain experience with configuring and maintaining

a network, and the use of tools to diagnose problems, monitor performance, and audit security. Offered in the spring semester when CS 360 is offered.

2 cr.

CS 364 Database Management Systems

Prerequisite: BIS 300 or CS 101 or IT 101 and at least junior standing. This is a study of concepts, theory, design techniques, and retrieval methods, particularly using the industry-standard SQL data language. Topics include physical data organization, database architecture, data models with emphasis on the relational model, logical database design, normalization, and relational query languages. A design and an implementation project are required. This course is equivalent to BIS 321 and IT 300. Offered in alternate fall semesters.

3 cr. Laboratory fee \$50.00.

CS 366 Design and Analysis of Algorithms

Prerequisite: CS 202 or CS 284 or permission of instructor. This course provides students with the fundamental techniques and strategies used in the design of algorithms, including proper selection of data structures, dynamic programming, divide-and-conquer, greedy methods, and backtracking. The course also exposes students to the analysis of algorithms using methods to estimate run-time performance. The theory of NP-completeness is discussed, along with heuristic methods for constructing algorithms for "hard problems." Numerous case studies give students perspective into how algorithm problems arise in the real world. Offered in the spring semester. Credit for this course and CPE 450 is not permissible. Offered in alternate spring semesters.

3 cr.

CS 370 Artificial Intelligence and Expert Systems

Prerequisite: Junior standing, and CS 102 or BIS 300 or CPE 305, or permission of the instructor. This course is a survey of artificial intelligence (AI) including fundamental ideas, techniques, and applications, especially expert systems. One of the two major AI languages, LISP and PROLOG, is used, both for programming and for demonstrating programs and examples. Students must complete a project or a report that may combine an aspect of artificial intelligence with their major area (for example, expert systems in financial planning or vision systems in robotics). Offered in alternate years.

3 cr.

CS 380 Object-Oriented Programming

Prerequisite: CS 351 or some experience in the C language. Object-oriented programming is an important paradigm in programming. The course explores the powerful technique of object-oriented programming, using C++ as a supporting language, and compares C++ with other object-oriented languages including Eiffel and Smalltalk. Problems considered for solution come from a wide range of areas including application systems, databases, and artificial intelligence applications. Offered in alternate fall semesters.

3 cr.

CS 390 Special Topics in Computer Science

Prerequisite: Junior standing and CS 202. Topics offered depend upon student interest as well as particular interests of instructors. The course is offered as often as faculty time and student interest permit and may be repeated for credit if the topic differs.

1-3 cr.

CS 411 Operating Systems

Prerequisite: CPE 310 or CPE 330, CS 202 or CPE 305, or permission of the instructor. This course is an examination of the organization and architecture of computer operating systems including the major concepts and the major systems programs associated with operating systems. Offered in alternate fall semesters.

3 cr.

CS 412 Systems Administration Lab

Corequisite: CS 411. Students will gain experience performing standard system administrative tasks, such as installing system and applications software, installing new hardware, managing user accounts, backing up and restoring files systems, boot-up and shutdown, monitoring performance, and writing utility scripts to automate procedures.

2 cr.

CS 480 Internship in Computer Science

See "Internships" on p. 31.

1-3 cr.

CS 490 Software Engineering

Prerequisite: CS 202 or equivalent, senior standing, or permission of instructor. This is a software engineering course studying principles, methods, and ethical aspects of software engineering and featuring a large-scale software engineering project. Offered in the fall semester.

3 cr.

CUL Cultures Past and Present**(College of Arts and Sciences)**

(Elements of Culture "C" and "CA" requirements)

CUL 201-390 Cultures Past and Present

Prerequisite: Sophomore standing. Cultures Past and Present is the generic title for a series of courses dealing with cultural comparison. These courses focus on societies in relation to all aspects of their environment, including geography, history, art, religion, literature, philosophy, social and economic systems, and political institutions. Strong emphasis is placed on the development of writing skills and logical thinking.

CUL 210 Comparative Race Relations: U.S. and South Africa (Formerly CUL 310)

Prerequisite: Sophomore standing. This course compares the experience of the United States and South Africa from the colonization by Europeans to the Civil Rights successes in the U.S. and the end of Apartheid in South Africa. We will study the literature, religious issues, political conflicts, and historical experience of these two cultures through the prism of race relations. We will study the works and lives of, among others, Malcolm X, Nelson Mandela, Stephen Biko, and Martin Luther King, as well as the political and economic realities which constrained and were changed by these individuals' activities. Satisfies Elements of Culture requirement "C."

3 cr.

CUL 221 The Viking World

Prerequisite: Sophomore standing. The Vikings were more than fierce warriors and daring pirates. They were shrewd businessmen, brave explorers, adaptable colonists, and skilled craftsmen. For two and a half centuries, they influenced the course of European history—in particular, the development of Great Britain and the English language—and left a legacy that continues into the modern world. This class offers an exploration of the history, art, language, (oral) literature, and customs of the Vikings. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 222 Southeast Asia

Prerequisite: Sophomore standing. This course will cover the countries of Indonesia, Thailand, the Philippines, Vietnam, Laos, and Cambodia. We will consider the geography of the area—the consequences of being east of India and

south of China, as well as issues affecting the environment and natural resources of this region; its history, essential points of nation formation, and the transitions from traditional to modern societies and governments; its economics, comparing the situation and policies before World War II to those afterwards, looking at traditional production techniques, and examining the effects of the present financial crisis; its cultures, the intersections of art, language, literature, music, drama, ethnicity, and religion; and social and political issues, such as the causes and impact of migration within and across the region, and ethnic and political conflicts. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 223 Modern Germany

Prerequisite: Sophomore standing. This course introduces students to the culture of modern Germany from its unification in 1871 under Bismarck to the fall of the Berlin Wall and the reunification of East and West Germany. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 225 Chinese Culture and Society

Prerequisite: Sophomore standing. This culture course about China examines how Chinese culture and society develop as a result of the interaction of historical, geographic, economic, philosophical, political and religious factors, and consider how those factors may be reflected in a culture's tradition. The thematic overview in the Chinese culture course might focus on the development of a cultural civilization and how that has developed over the last and contemporary century.

3 cr.

CUL 235 The United States and International Perspectives

Prerequisite: ENGL 100 or equivalent. Open only to nonnative speakers of English. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 241 Classical Greece

Prerequisite: Sophomore standing. The Greek miracle is the creative genius born from the marriage of clarity of mind (reason) and deep spiritual power. Greek culture illuminated and guided change in a largely brutalized world where nothing had been held so cheap as human life. We will examine Greek society by way of literature, art, and archeology, considering myths, philosophy, and a way of life incorporating study, athletics, banquets,

and slavery. Satisfies Elements of Culture requirement "C" or "CA."

3 cr.

CUL 243: Irish Culture

Prerequisite: Sophomore standing. "Each community defines itself as much by what it is as by what it is not, and what it is not, is, above all else, the other." -Michael McDonald, *Children of Wrath: Political Violence in Northern Ireland*. The dilemma in studying Irish culture is that not just one culture exists; colonization has led to the creation of multiple cultures and identities in Ireland. The two dominant cultures in Ireland are at odds over every aspect of a perceived "national identity." What is "Irish"? Who defines a culture? If no consensus exists, how does a culture survive? Mythology, literature, music, and political symbolism are the main tools utilized by all in Ireland who attempt to create or define their culture. In this course we will explore the creation of cultures and identities in Ireland by examining Irish history, literature, music, and symbolism. We will also look at the very different perception of Irish culture created in the United States.

3 cr.

CUL 246 Modern Israel

Prerequisite: Sophomore standing. This course's objective is to understand the historical, political, economic, religious, and cultural dimensions of modern Israel and to examine these themes among others: the establishment of the state, its survival, the role of the Holocaust, and the role of art. Satisfies Elements of Culture requirement "C."

3 cr.

CUL 247 Renaissance Florence and Revival Dublin

Prerequisite: Sophomore standing. This course surveys and compares the art, music, literature, and history of Florence during the Italian Renaissance and of Dublin during the Irish Revival. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 248 Russia Then and Now

Prerequisite: Sophomore standing. Satisfies Elements of Culture requirement "C."

3 cr.

CUL 250 Latin American Civilization

Prerequisite: Sophomore standing. The objective of the course is to introduce the student to the rich cultural heritage of the peoples who have contributed toward forming the societies of Latin America. Attention will be

given to the Indigenous, Spanish, Portuguese, and African populations. The course will examine Latin America from the perspectives of its environment, history, society, and higher thought (philosophy/religion). The student will be introduced to the geographical diversity and resources of Latin America. There will be discussion of the historical development of Latin America, dating back to pre-Columbian times. Comparisons will be made in the discussions with the historical and societal development of the United States. Comparisons will also be made among the diverse societies that comprise Latin America. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 251 Justice Then and Now

Prerequisite: Sophomore standing. This course will consider the development of the Hellenistic world, the growth of the Roman Republic, the transition to the Principate, and then the Dominate. Lectures and readings will survey Roman Literature, Philosophy, Law, Religion, and the rise of Christianity. Attention will be given specifically to the Roman practice of criminal law and procedure—apprehension, trial, and punishment—comparing this practice to that of England in the 18th century and America of today. Satisfies Elements of Culture requirement "C."

3 cr.

CUL 260 Japan

Prerequisite: Sophomore standing. As we start the 21st century, worldwide interest in global cultures has grown. Interactions between people from different cultures have increased profoundly because of changes in technology, political systems, immigration patterns, and the global economy. In this course, we will focus on the culture of Japan, and its interactions with the United States, examining the following areas of the Japanese experience: cultural history, cultural patterns, world view, religion, language, education, art, architecture, drama, traditional sports, and contemporary issues in Japan. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 261 Australia and New Zealand

Prerequisite: Sophomore standing. This course examines the impacts of three waves of colonization to Australia and New Zealand—the development of plants and animals in isolation, the first arrivals of Australian Aboriginals and New Zealand Maori, and the

settlements of European prisoners, whalers, missionaries, pastoralists, and gold miners. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 262 Ancient Rome

Prerequisite: Sophomore standing. This course introduces students to the culture of ancient Rome, with special emphasis on the late Republic and the beginning of the rule of the emperors. It covers politics, economics, religion, philosophy, social life, entertainment, women and the family, art and architecture, and literature. Students will learn about such figures as Hannibal, Tiberius and Gaius Gracchus, Julius Caesar, Augustus, Mark Antony, Cleopatra, Caligula, Nero, and the women of the imperial family of the Julio-Claudians. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 263 France and French Caribbean Culture

Prerequisite: Sophomore standing. This course introduces the students to the politics and culture of France and their influence on the Francophone Antilles. The course includes the geography and a capsulated history of France, as well as that of Haiti, French Guiana, Martinique, and Guadeloupe. Much emphasis is placed on the impact of the French Revolution of 1789 on the Haitian Independence movement, and the political ramifications in Guadeloupe, Martinique, and French Guiana. The course attempts to compare and contrast the differences between the African and French influences in these countries, socially and economically, and examines the effects of these disparities as reflected in their music, art, and literature. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 265 Weimar Germany

Prerequisite: Sophomore standing. This course focuses on the human experience of living in the tumultuous period of German democracy known as the Weimar Republic, 1919-1933. We will study the political and social institutions of Imperial Germany and of the democracy until the Nazi takeover. Against this backdrop, we will look at art, architecture, film, theater, philosophy, and mass culture. Satisfies Elements of Culture requirement "CA."

3 cr.

CUL 266 Elizabethan England

Prerequisite: Sophomore standing. This course introduces students to the culture of Elizabethan England, and major topics include Elizabethan English, society, politics, and religion. The first is especially crucial because a level of proficiency in Early Modern English is necessary to read and understand the many primary documents studied. The final unit of the course focuses on the Arts—portraiture, music, dance, and literature—concluding with a cultural approach to a Shakespearean play. Throughout the course, attention is given to how the period compares and contrasts with the United States today and to how Elizabethan culture has influenced our own. Satisfies Elements of Culture requirement “CA.”

3 cr.

CUL 270 Victorian Britain

Prerequisite: Sophomore standing. This course explores Great Britain’s culture of the nineteenth century. It covers history, politics, economics, social life, religion, philosophy, and art. Satisfies Elements of Culture requirement “CA.”

3 cr.

CUL 273 East Africa

Prerequisite: Sophomore standing. This course discusses pre-colonial, colonial, and post-colonial history, traditional cultures (art, religion, and customs), political organizations, and literature of East Africa. Until recently, East Africa included the following former British territories: Kenya, Tanzania, and Uganda. Today that geographic area includes also two former Belgian territories: Burundi and Rwanda. The East Africa course will focus on a particular country or a comparison of two countries in East Africa. In the Rwanda focus, for example, Rwanda will be used as a case study to illustrate the impact of colonialism on African societies and the increasing importance of human rights in international relations. At other times, the course may focus on Swahili culture in general, or on some other aspect of East Africa. Satisfies Elements of Culture requirement “C” or CA.”

3 cr.

CUL 290 Special Topics in Cultures

Prerequisite: Sophomore standing. Topics that are not offered on a regular basis are examined. Recent topics have been China, Southeast Asia, and a travel course to Italy and the low countries. The course may be repeated

for credit if the topic varies. Satisfies Elements of Culture requirement “CA.”

3 cr.

CUL 312 Renaissance Culture and Society, 1300-1500 CE

Prerequisite: Junior standing. This course will explore the important shift in European culture and society during the years 1300-1500, with special emphasis on the city of Florence. We will study a wide range of cultural sources (art, literature, personal diaries, etc.) to help us understand this crucial period. Note: this course is equivalent to HIST 312 and satisfies both the cultural studies perspective and historical perspective requirements.

3 cr.

CUL 315/BUS 315 International Practicum

Prerequisites: Sophomore standing and consent of instructor—International Practicum involves trips of one- to two-week duration during school breaks that are chaperoned and supervised by a business faculty member. These trips take students outside the geographic borders of the U.S. and provide learning experiences beyond the classroom environment. Programs and activities enhance the ability of students to comprehend, analyze, and grasp different cultural aspects that have impact on successful management of organizations in the global work environment. The major goal of the International Practicum is to allow undergraduate students opportunities to enhance their understanding of cross-cultural differences and the globalization of the work environment. The course may be repeated for credit if the location/topic varies. When taken with CUL 316, satisfies Elements of Culture requirement “CA.”

1 cr.

CUL 316/BUS 316 International Practicum Seminar

Prerequisite: Concurrent enrollment in CUL 315 (International Practicum). This course serves as a complement to CUL 315 International Practicum (1 credit) and may be taken only during the semester the student is enrolled in the corresponding CUL 315 travel/study course. The seminar is designed to provide students with an enhanced context and framework for their International Practicum study/travel experience. The course involves research and discussion of the contemporary business environment in the country they will be visiting, including current political, social, cultural, and economic issues facing

businesses in that area. The course may be repeated for credit if the location/topic varies.
2 cr.

CUL 333-334 Independent Study in Cultures

See “Independent Study” on p. 30.

1-3 cr.

CUL 390 Special Topics in Cultures

Prerequisite: Junior standing. Satisfies Elements of Culture requirement “C.” Topics that are not offered on a regular basis. The course may be repeated for credit if the topic varies.

1-3 cr.

EC Economics

(College of Arts and Sciences)

EC 105 The Economics of Crime

This course does not satisfy the economics requirement in the Colleges of Business and Engineering. This is an examination at the very basic introductory level of the market relationship between the amount of crime and the money spent on crime prevention and protection. A basic issue discussed in the course is that given limited resources and an obvious recognition that crime imposes an economic cost, society must make choices involving the trade-off between the economic costs of crime and the costs of purchasing more crime protection. The opportunity cost principle is used to illuminate this and other issues including the impact of criminal activity on the Gross Domestic Product and the impact of changing the legal status of certain goods and services.

3 cr.

EC 106 The Economics of Poverty and Discrimination

This course does not satisfy the economics requirement in the Colleges of Business and Engineering. This is an introduction to the economic analysis of the problems of poverty and gender and race discrimination in the United States. Competing analytical perspectives are presented and evaluated. The course covers, among other topics, the analysis of government policies such as income maintenance, minimum wages, Affirmative Action, and education policies.

3 cr.

EC 111 Principles of Economics I (Formerly EC 201)

Not open to students who have taken EC 117 or EC 206. This course introduces students to economic principles, beginning with the

issue of scarcity and choice and building to an understanding of microeconomics. Topics include characteristics of the American private enterprise economy; markets, the price system, and the allocation of resources—including the different market structures in American industry; the labor market; the role of government when social costs and private costs diverge; and the distribution of income.

3 cr.

EC 112 Principles of Economics II (Formerly EC 202)

Prerequisite: EC 111. Not open to students who have completed EC 117 or EC 205. This course continues the coverage of basic economic principles. Most of the course will focus on the economy as a whole—on macroeconomics. Topics include National Income Accounting, unemployment and inflation, money and banking, the issue of government deficits and the national debt, economic growth, and international trade and finance.

3 cr.

EC 117 Principles of Quantitative Economics (Formerly EC 207)

Prerequisite: MATH 133 or MATH 123 or equivalent. Not open to those who have taken EC 111 or EC 112 or EC 201 or EC 202. This course is a calculus-based introduction to economic principles, both macro and micro. All topics will be elucidated mathematically. Topics include characteristics of the American private enterprise economy; markets, the price system, and the allocation of resources, including the different market structures in American industry. The course will also cover national income accounting, macroeconomic equilibrium, and fiscal and monetary policy issues.

3 cr.

EC 190 Special Topics in Economics

Topics in economics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

EC 215 Macroeconomics (Formerly EC 305)

Prerequisite: EC 202 or EC 112 or EC 207 or EC 117 and MATH 111 or MATH 123 or MATH 133. This is a theoretical and applicational view of aggregative economics. A survey of Classical, Keynesian, and neo-Keynesian theory leads into a study of macroeconomics and economic policies, particularly in the United States. Emphasis is on current national economic goals and the macro dynamics of inflation, growth, investment, and consumption as well

as the problem. Public policies to promote economic stability and growth are discussed in detail.

3 cr.

EC 216 Microeconomics (Formerly EC 306)

Prerequisite: EC 112 or EC 117 or EC 111 or EC 206 and MATH 111 or MATH 123 or MATH 133. This is an intermediate course in economics covering the theoretical bases used by economists in explaining the behavioral patterns of consumers, firms, and industries. Problems, readings, and discussions are directed to the logical development, understanding, and application of theoretical models and concepts rather than pure exposition of static analysis.

3 cr.

EC 219 American Economic History (Formerly EC 316)

Prerequisite: EC 112 or EC 106 or EC 117 or EC 202. This is a problem-oriented approach to American economic history. Specific problems studied in depth vary, but have included the economic experience of Black America, the agricultural problems of the post-Civil War years, Southern economic history, the rise of the industrial giants, and the causes and consequences of the Great Depression.

3 cr.

EC 274 Environmental Economics (Formerly EC 374)

Prerequisite: EC 111 or EC 101 or EC 117 and EC 201. This course examines the economic aspects of current environmental and natural resource issues. The problems of pollution control and resource management are examined from an economic perspective. Other topics may include the global population problem; energy dependence and the economy; the economics of recycling; and the impact of environmental policy on growth, jobs, and the quality of life. Offered in alternate years.

3 cr.

EC 290 Special Topics in Economics

Prerequisite: EC 117 or EC 207. Topics in economics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

EC 311 Money and Banking

Prerequisite: EC 112 or EC 117, MATH 111, and EC 202 or equivalent. This is a study of the role of money, credit, and financial institutions in the U.S. economy. Topics include policies concerning depository institutions, the role

of the Federal Reserve System, and monetary theory.

3 cr.

EC 315 Comparative Economic Systems

Prerequisite: EC 205 or EC 101. This is a study of capitalism and socialism including theoretical interpretations of these systems. Case studies include descriptions of the mixed capitalist economies of the United States and Western Europe and the transitional economies of the former Soviet Union, China, and Eastern Europe. Offered in alternate years.

3 cr.

EC 321 Economic Development

Prerequisite: EC 111 or EC 117 and EC 201. This is an analysis of the characteristics and causes of underdevelopment in poor nations and of programs designed to stimulate economic growth. Offered in alternate years.

3 cr.

EC 333-334 Independent Study in Economics

See "Independent Study" on p. 30.

1-3 cr.

EC 340 The Economics of Sports

Prerequisite: EC 111 or EC 105 or EC 117 or EC 207 and EC 201. This course applies the tools of economic theory to the market for professional sport entertainment. The major professional sports leagues all exhibit several practices which are unparalleled in other U.S. industries. These practices, both in hiring athletes and selling the "entertainment product," are analyzed. Government policies towards this unique market are also investigated.

3 cr.

EC 350 Economics of Arts and Entertainment

Prerequisite: EC 111 or EC 105 or EC 106 or EC 117 or EC 207 or EC 201. This course applies the tools of economic theory to an analysis of the arts and entertainment industry. Key learning outcomes focus on the nature of supply and demand for art and artistic services, the contribution of the arts and entertainment sector to the economy, the economic functions of artists, the role of the nonprofit sector, and the role of public policy in providing a basis for cultural activities and organizations.

3 cr.

EC 351 Economics and Government

Prerequisite: EC 111 or EC 117 and EC 201. This course is a critical examination of the role of governments in free enterprise economies. Topics include the history of governmental

intervention in business, industry, and finance; major current economic problems; and the method and degree of government action proposed to resolve economic problems. Offered in alternate years.

3 cr.

EC 355 Public Finance

Prerequisite: EC 112 or EC 117 and EC 202. This course studies the effects of government expenditure, borrowing, and taxation upon resource allocation, national income, employment, and income distribution. Special emphasis is placed on the appropriate types of taxation and current and recent government budgetary choices. Offered in alternate years.

3 cr.

EC 361 Urban Economics

Prerequisite: EC 111 or EC 117 and EC 201. This course is a study of the economic aspects of the social and political problems of the modern American city. Offered in alternate years.

3 cr.

EC 371 International Monetary Economics

Prerequisite: EC 112 or EC 117 and EC 202. This is an analysis of the balance of payments and the foreign exchange market including the theory of payments adjustment and policies to attain domestic international balance. The course examines the roles of the dollar, other currencies, and the International Monetary Fund in the process of international monetary reform.

3 cr.

EC 372 International Trade

Prerequisite: EC 111 or EC 117 and EC 201. This course studies the theory and practice of international trade and investment. Topics include comparative advantage, determination of the pattern of trade, current problems of commercial policy and trade negotiations, the role of the multinational corporation, and the theory of economic integration with special reference to the European Union. Offered in alternate years.

3 cr.

EC 386 Econometrics

Prerequisite: EC 111 or EC 112 or EC 117; and MATH 112 or MATH 123 or MATH 133; and BIS 220 or MATH 120, or PSY 207 and EC 201. This course covers methods of detecting and means of remedying violations of the assumptions of classical regression analysis. While only economic models are discussed, the methodology is multidisciplinary in nature.

3 cr. *Laboratory fee \$25.*

EC 390 Special Topics in Economics

Prerequisite: Varies according to nature of course. Topics offered depend upon student interest as well as particular interests of instructors. The course is offered as often as faculty time and student interest permit. Recent topics have included "The Economics of Work and Pay," "The Economics of Election Issues," "Women in the Economy," and "Great Ideas in Economics." May be repeated for credit if the topic differs.

1-3 cr.

EC 480-481 Internship in Economics

See "Internships" on p. 31.

1-3 cr.

EC 490 Seminar: Issues in Contemporary Economics

Prerequisite: EC 112 or EC 202 or EC 117 plus six additional credit hours of 200 or 300 level economics. This course involves discussions of various topics of interest in economics. Each student prepares a research paper on a topic of choice, under the direct supervision of a faculty member. Majors in other programs are most welcome.

3 cr.

ED Education

(College of Arts and Sciences)

ED 190 Special Topics in Education

Topics in education that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

ED 252 Survey of Geography

Prerequisite: Sophomore standing. This course introduces students to concepts and theories of geography. Students are also introduced to the National Geography Standards.

1 cr.

ED 290 Special Topics in Education

Topics in education that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

ED 301 Principles and Problems of Education

Prerequisite: Junior standing. This course is an exploration of the issues confronting education at all levels. Topics include the history of education, philosophy of education, goals of educational systems, school organization and control, moral education, students' and

teachers' rights, school law, special education, multicultural education, and contemporary issues in education. Student performance is assessed through written assignments, quizzes, presentations, and participation. Students intending to enter the Secondary Education Program are required to do appropriate field study.

3 cr.

ED 333-334 Independent Study in Education

See "Independent Study" on p. 30.

1-3 cr.

ED 350 Teaching of Elementary Reading and Language Arts

Prerequisite: Enrollment in Elementary Education Program or permission of instructor. This course focuses on the teaching of children's reading, writing, speaking, listening, and viewing skills in grades 1-6. Students learn formal and informal methods of assessing reading development, and significant theories and practices for developing reading skills and comprehension. They gain knowledge of the principles and instructional practices for developing phonemic awareness and phonics. They learn about the development of listening, speaking, and reading vocabulary, and theories on the relationships between beginning writing and reading. Students also gain an understanding of the approaches and practices for developing skills in using writing tools, as well as theories of first and second language education and development. Lesson planning is introduced in the class; the Massachusetts English Language Arts Curriculum Framework is used as a reference for lesson rationales. Student performance is assessed by exams, written assignments, and lesson plan designs. Twenty-five hours of pre-practicum field work and a field work journal completed at a local elementary school are required for students intending to complete the Elementary Education Major.

3 cr.

ED 375 Elementary Curriculum and Methods

Prerequisite: Enrollment in the Elementary Education Program or permission of instructor. This course places an emphasis on the development of concepts in mathematics, science, and social studies in grades 1-6. As a result of taking this course, students learn to balance direct elementary instruction with facilitated learning using physical models, manipulatives, and primary sources. Students demonstrate familiarity with current curriculum models and standards, instructional strategies,

and instructional materials. Students complete lesson plans for curriculum units, using the Massachusetts Curriculum Frameworks as a resource, and plan and demonstrate math, science, and social studies lessons using appropriate manipulatives, technology, physical models, cooperative learning techniques, and various assessment tools. Student performance is assessed by quizzes, written assignments, lesson plan designs, and other content-specific assignments. Twenty-five hours of pre-practicum fieldwork at a local elementary school is required for students intending to complete the Elementary Education Major.

3 cr.

ED 380 Secondary Education Topics

Prerequisite: PSY 304, ED 301, senior standing and acceptance into the Secondary Education Program. In this course an array of veteran teachers and content area faculty do presentations on issues relevant for secondary education. Topics include teaching special education students, teaching with the MA Curriculum Frameworks and Learning Standards, MCAS testing and effective assessment, use of technology in the classroom, legal issues in the teaching profession, among others. At the end of this course, students are able to apply this knowledge to the teaching practicum. The course is graded pass/fail, based on attendance and classroom participation.

1 cr.

ED 390 Special Topics in Education

Topics in education that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

ED 403 Methods of Teaching in Secondary Schools

Prerequisite: Senior standing and acceptance into the Secondary Education Program. This course is a study of the process of teaching, utilizing the Massachusetts Curriculum Frameworks and the Learning Standards. Topics include: objectives of teaching; class control and management; lesson preparation and planning; instructional design and strategies; curriculum development; techniques of questioning; materials of instruction; use of media; legal and moral responsibilities of the teaching profession; preparation of individualized instructional lessons; evaluation procedures and MCAS testing; and the role of the teacher in different

classroom situations. Clinical experiences such as communications exercises, simulation, and micro teaching are provided. A required field study is integrated with the practicum experience. Student performance is assessed by written assignments and an examination.
3 cr.

ED 409 Practicum in Secondary Teaching

Prerequisite: ED 301, PSY 304, and ED 403. Open only to those students in the Secondary Education Program. This is a practicum in teaching under the supervision of experienced teachers. The student teacher is observed, guided, and evaluated by a teacher from the high school, who is the supervising practitioner, and by a University faculty member, who is the program supervisor. Both supervisors will use the Massachusetts Professional Standards in their assessment. This course and SW 412 may not both be counted toward the minimum 122 credit hours required for the degree.
9 cr.

ED 410 Secondary Practicum Seminar

Prerequisite: ED 301, PSY 304, and ED 403. Students doing the secondary teaching practicum participate in a weekly seminar. As a result of taking this course, students are able to analyze and refine teaching strategies, curriculum designs, classroom management, and assessment. Students demonstrate skills as reflective practitioners of the teaching process. They are assessed by weekly classroom participation, a teaching journal that is handed in at the end of the semester, and a professional portfolio.
3 cr.

ED 425 Elementary Education Topics

Prerequisite: Senior standing, acceptance in the Elementary Education Program, ED 301, PSY 201, PSY 304, ED 350, and ED 375. This is an investigation of instructional strategies for teaching the arts, health, physical education, and technology for grades 1-6, using the Massachusetts Curriculum Frameworks. As a result of taking this course, students are able to identify curriculum models and instructional materials for these content areas; they design and demonstrate appropriate lesson plans. Students also design strategies for addressing the needs of special education students and strategies for the general management and organization of the elementary classroom. An important component in the course is a pre-practicum fieldwork experience undertaken at a local elementary school. Student performance is assessed by written

assignments, lesson plans, 25 hours of pre-practicum fieldwork at a local elementary school, and a fieldwork journal.
3 cr.

ED 479 Elementary Teaching Practicum

Prerequisite: ED 301, PSY 304, ED 350, ED 375, ED 425, senior standing, and completion of all preliminary elementary education coursework. This is a practicum in teaching under the supervision of qualified teachers. As a result of taking this course, students are able to design and teach content-appropriate lesson plans, utilize a variety of instructional techniques, organize and manage a classroom fairly and effectively, address a range of student learning needs, assess the performance of the students in the classroom, and conduct themselves in a professional manner. Student performance is assessed by unit and lesson plan designs based on the Massachusetts Curriculum Frameworks, as well as by regular observation and evaluation by an elementary teacher, who is the supervising practitioner and by a University faculty member, who is the program supervisor; both use the Massachusetts Professional Standards in their assessment. Open only to those students in the Elementary Education Major, this course and SW 412 may not both be counted toward the minimum 122 credit hours required for the degree. Includes 300 hours of full-time practicum fieldwork (student teaching) at a local elementary school.
9 cr.

ED 480 Elementary Practicum Seminar

Prerequisite: ED 301, PSY 304, ED 350, ED 375, ED 425, senior standing, completion of all preliminary elementary education coursework, and concurrent involvement in ED 479. This is a weekly seminar for students doing the elementary teaching practicum. As a result of this course, students are able to analyze and refine teaching strategies, curriculum designs, classroom management, and assessment. Professional issues and preparation for job search are explored. Students demonstrate skills as reflective practitioners of the teaching process. Student performance is assessed by weekly classroom participation, a teaching journal that is handed in at the end of the practicum, and completion of a professional portfolio. Is concurrent with 300 hours of full practicum fieldwork (student teaching) at a local elementary school.
3 cr.

EE Electrical Engineering

(College of Engineering)

EE 205 Electrical Engineering I

Prerequisite: MATH 134. Pre- or corequisite: MATH 236 and PHYS 134. Students will learn about the static and dynamic behavior of resistors, capacitors, and inductors, the types of electrical energy sources used, the rules used to analyze electrical circuits, to analyze DC and AC circuits for power flow and response characteristics, how to analyze and design op amp circuits used in instrumentation applications, and how to analyze and test Combinational Logic Circuits as applicable to simple industrial and domestic control settings. Students will be able to model and mathematically describe circuit behavior under either static or dynamic conditions. To facilitate learning, this course makes extensive use of a circuit simulator and has a strong laboratory component (with a design project) to reinforce course material and develop laboratory skills with electronic instruments. Three class hours, three lab/tutorial hours.

4 cr.

EE 206 Electrical Engineering II

Prerequisite: EE 205 and pre- or corequisite MATH 236. This course builds on the knowledge gained and analytical skills developed in EE 205. Students learn to analyze circuits in steady state with alternating voltages and currents including determining frequency responses of circuits and analyzing resonant circuits. Students learn to model transformers and include them in steady state analysis of AC circuits. Additionally students study three phase power systems and active filter designs. Students use computer simulation as a tool for both transient and AC steady state analysis and use electrical test equipment to verify the theory learned. The methods of assessing student learning in this course are homework assignments, quizzes, exams, laboratory experiments, with reports a design project and final exam. Three class hours, three lab/tutorial hours.

4 cr.

EE 285 Computational Techniques in C

Prerequisite: ENGR 105 or equivalent and MATH 134. This course provides an introduction to C programming and its application for solving problems in electrical and computer engineering. The application topics include digital signal processing, controls, computational methods, finite

difference analysis, root finding, optimization methods, and matrix methods. The course focuses predominantly on applications of the methods, and students are required to solve real world, engineering problem utilizing the C language as well as MATLAB to implement algorithms. Students will gain practical experience with these techniques dealing with real applications.

3 cr.

EE 301 Signals and Systems I

Prerequisite: MATH 236 and pre- or corequisite EE 206. This is the first of a sequence of two courses that is developed to introduce students to the concepts of signal modeling and the interaction of signals and linear systems. The focus is on the continuous-time cases such as voice and music. Students learn signal and system modeling concepts; time-domain analysis including concepts of convolution and superposition; system response to different stimuli including impulse and step; frequency-domain analysis including concepts of Fourier series, Fourier transforms, and Laplace transforms; and applications of analytical tools such as signal representations, transfer functions, and filtering. Throughout the semester, MATLAB, a computational software program, is used to emphasize and to help in understanding important concepts of the course as well as a tool for solving homework problems. The methods of assessing student learning in this course are homework assignments, quizzes, in class exams, and a final exam.

3 cr.

EE 302 Signals and Systems II

Prerequisite: EE 301. This is the continuation of EE 301 course and develops the students' ability to apply mathematical techniques to analyze discrete signals and systems. Students learn the fundamentals of sampling and the representation of discrete-time systems and modeling an analog-to-digital (A/D) converter. They also learn both ideal and approximate methods of reconstructing a signal from a sequence of samples, and learn z-transform, inverse z-transformation, discrete convolution, difference equations, discrete-time transfer functions, discrete Fourier transform (DFT), and its realization through the use of fast Fourier transform (FFT) algorithms. Students also learn to analyze and design filters such as Butterworth, Chebyshev analog filters, Infinite Impulse Response (IIR), and Finite-duration Impulse Response (FIR) digital

filters. Throughout the semester, MATLAB, a computational software program, is used to emphasize and to help in understanding important concepts of the course as well as a tool for solving homework problems. The methods of assessing student learning in this course are homework assignments, quizzes, in class exams, and a final exam.

3 cr.

EE 303 Introduction to Microelectronic Circuits I

Prerequisite: EE 206 or equivalent. Co-requisite: EE 301 or equivalent, or permission of instructor. A study of the behavior and modeling of semiconductor devices. Topics include nonlinearity and the methods used to analyze nonlinear elements, simple AC and DC converters, and voltage regulation. Among the semiconductor devices studied are diodes, bipolar junction-transistors and field-effect transistors. Computer simulation is used as a design and study aid. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 312 Semiconductor Devices

Prerequisite: EE 303. This course is designed to give the student an introduction to the physical basis of semiconductor devices. The goals are to provide the student with (1) a working knowledge of the physics underlying all semiconductor devices; (2) an understanding of the physical principles behind the most common semiconductor devices: the p-n junction diode, field-effect transistor, and bipolar transistor; (3) an understanding of the relationship between the circuit behavior of the devices, which were encountered in earlier courses, and their physical embodiment; and (4) a perspective of the physical and technological limitations of electronic devices.

3 cr.

EE 314 Fields and Waves

Prerequisite: EE 206 or equivalent. This is a one-semester introductory course in one of the most important subjects in electrical engineering, electromagnetic field theory, and its applications. Radar, television, electric motors, fiber optics, and medical imaging all depend on knowledge from this area. Upon completing this course the students have a basic understanding of the mathematical tools used in modeling static or dynamic electromagnetic fields, the behavior of static

or dynamic electromagnetic fields in various media with different physical boundaries, and the use of electromagnetic field theory in such important applications as transmission lines, waveguides, and antennas. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 319 Electrical Engineering Laboratory I

Prerequisite: EE 303 or concurrently. This course is the first of the three course sequence designed to give students hands-on experience in the use of laboratory instruments, collection and interpretation of data, and design and debugging of electrical analog and digital circuits. The course also serves to develop technical writing skills. Students investigate device characteristics according to the instructions given and compare with those expected from theory. They also design and build digital and analog electronic circuits and demonstrate by appropriate measurements that the circuits perform and meet the design specifications. Students prepare engineering reports for every laboratory experiment. The assessment is based on the quality of collected data and the written report. One class hour, one three hour lab.

2 cr.

EE 320 Introduction to Microelectronic Circuits II

Prerequisite: EE 303 or equivalent. BJT and MOSFET amplifiers are studied. This includes the analysis of differential amplifiers, current mirrors, multistage amplifiers, feedback amplifiers, power amplifiers, and integrated circuit amplifiers. Feedback and frequency analysis of amplifiers is emphasized. Computer simulation is used as a design and study aid. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 323 Electrical Engineering Laboratory IIa

Prerequisite: EE 319 and EE 320 or concurrently. Required of all Electrical Engineering majors (electrical and computer concentrations). The course builds on the skills developed in EE319 and the material learned in junior level courses. Students design, build, and test electronic circuits. Students also study the societal impact of electrical engineering, and contemporary issues related to electrical engineering. The assessment in this course is based on the quality of work done in the lab

and the quality of the students' reports. One class hour, one three hour lab approximately every other week.

1 cr.

EE 324 Electrical Engineering Laboratory IIb

Prerequisite: EE 319 and EE 320 or concurrently. Required of all Electrical Engineering majors in the electrical concentration. (Not required of students taking CPE 360.) The course builds on the skills developed in EE 319 and the material learned in junior level courses. Students design, build, and test electronic circuits with more than one device, determine parameters of device models, and use those for analysis and design of electric circuits. The results are documented in engineering reports. The assessment in this course is based on the quality of work done in the lab and the quality of the engineering reports. One class hour, one three hour lab approximately every other week.

1 cr.

EE 336 Electrical Energy Systems

Prerequisite: EE 205 or ENGR 208. This is an introductory level course in the generation, distribution, and management of electrical energy in the context of Green Engineering. This course presents the essential components and operating features of the power industry so that those components and features can be used effectively with emerging technologies of energy capture (i.e. solar, wind, geothermal, etc.). Upon successful completion of this course, students should have a firm understanding of the structure and components of an electrical power system and be able to model such systems and determine associated power flows, efficiencies, and energy budgets. Methods of assessment include homework, quizzes, tests, and a short paper on one of the topics related to the course.

3 cr.

Note: Courses that are numbered 4xx may also be numbered 5xx. These 5xx numbered courses are available to entry level graduate students. Courses designated at the 500 level are generally provided for graduate students who may require a stronger foundation in a subject area before proceeding to 600 level courses. Separate syllabi are provided for each section that reflects the differences in expectations for seniors (400 level) and entry level graduate (500 level) students. Graduate students can expect additional journal research and projects.

EE 411/EE 511 Random Signals and Noise

Prerequisite: EE 301; ENGR 212 or IE 212. This is a study of signals, both random and nonrandom. Topics include spectrum analysis, auto-correlation and cross-correlation functions, network analysis of systems with random signals and noise, applications to various areas such as: reception of radar, and space signals. A design project is required.

3 cr.

EE 414/EE 514 Microwave Engineering

Prerequisite: EE314 or equivalent. Fundamentals of modern microwave engineering with emphasis on microwave network analysis and circuit design. Microwave transmission lines, including waveguide, coax, microstrip, and stripline. Microwave circuit theory, including S-parameters, ABCD matrices, equivalent circuits, and signal flow graphs. Upon completion of this class the student will be able to analyze and design passive microwave circuits and components such as matching networks and microwave resonators, power dividers, directional couplers, and filters. Throughout the semester, SerenadeSV, Sonnet Lite, and MATLAB will be used to emphasize and to help in understanding important concepts of the course as well as a tool for solving homework problems. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 416/EE 516 Electromagnetic Compatibility

Prerequisites: EE 301 and EE 314 or the equivalents. Senior level course focusing on the application of electromagnetic field and wave principles to equipment and system design practices for the control of Electromagnetic Interference (EMI) and the achievement of Electromagnetic Compatibility (EMC). EMI requirements for electronic equipment, EMI measurements, non-ideal behavior of components, spectrum analysis, radiated emissions and susceptibility, conducted emissions, crosstalk, field-to-cable and cable-to-field coupling, electrostatic discharge, grounding, and system configuration. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 421 Electronics of Radio

Prerequisite: EE 303. Design of a radio system for transmission of information; types of

receivers, matching techniques, oscillators, design using 2-port network parameters, receiver and antenna noise, nonlinear effects, frequency synthesis. The goal of this course is to teach electrical engineering students the basic principles of radio-frequency circuit design and to illustrate how such circuits are used in communication systems. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 422 Control Systems

Prerequisite: EE 301 or ME 320 or BME 202. This is an introductory course in analysis and design of linear control systems. Students learn to analyze mathematical models, systems representation and reduction, steady-state errors, time domain and frequency domain system performance and specifications, methods of testing for stability, Bode, root locus, and frequency domain response methods of linear time invariant systems. They also learn to design lead, lag, and lead-lag compensation techniques. Students also learn to use MATLAB computational software to understand new concepts and to perform and implement system analysis and design techniques. The methods of assessing student learning in the course are quizzes, exams, homework assignments, and a project.

3 cr.

EE 423/EE 523 Communications

Prerequisite: EE 302 and EE 320 This is a course in electronic (analog and digital) communication fundamentals. After successfully completing this course students know what analog and digital signaling methods (PAM, PCM, AM, PM, and FM) are available; know how to model, analyze, and design a basic communication link; know how to model, analyze, and design signals that go with the various signaling methods (including the theories on information measure, signal types and their measure, encoding schemes and Fourier analysis); are familiar with the various types of modulation and demodulation schemes available and are familiar with some of the practical applications of modulation/demodulation theory. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, a research project, and a final exam.

3 cr.

EE 425/EE 525 Linear Systems Theory

Prerequisite: EE 301 or ME 320. Students learn the fundamentals of the state space approach to systems modeling, analysis, and design. They also learn how to find the state space model of electrical, mechanical, and electromechanical systems. In addition students learn how to represent a system in the Jordan, first canonical, and phase variable forms, and to apply state space techniques to find zero input, zero state, and complete solution from state space system equations. In addition students learn to perform system stability, controllability, and observability tests and to design state and output feedback techniques as well as observer design technique. Students also learn to use MATLAB computational software to understand new concepts and to perform and implement system analysis and design techniques. The methods of assessment of student learning in this course are homework assignments, quizzes, tests, and a design project.

3 cr.

EE 427 Electrical Engineering Laboratory III

Prerequisite: EE 323, EE 324 or CPE 360. This is the third of a three-course laboratory sequence. The course consists of several experimental projects designed to provide students with hands-on experience in analysis and design of electronic circuits and systems. After successfully completing this course the students are able to design, construct, and test sensor, relay, and motor interface circuits. They will design these circuits as part of an interdisciplinary project where the team designs, constructs, and tests a vehicle. They will build a prototype circuit board and interface it to the sensors, relay circuit, motor, and power source on the vehicle and to the microprocessor prototype circuit board. Additional experiments in control theory will be performed. These experiments include modeling and simulation of a control system, and designing, building, and testing an analog PID motor speed controller. The students reinforce their technical writing ability by writing an engineering report on the results of each project. The assessment in this course is based on the quality of the work done in the laboratory and the written reports. One class hour, one three hour lab.

2 cr.

EE 428/EE 528 Design of Analog CMOS Integrated Circuits

Prerequisite: EE 320 or equivalent. The general objective of the course is to introduce students

to the building blocks of analog integrated circuits; such as differential amplifiers, current sources and mirrors, gain stages, level shifters, active loads, and output stages. Throughout the semester, Spice will be used to emphasize and to help in understanding important concepts of the course as well as a tool for solving homework problems. The primary methods of assessing student learning are homework assignments, quizzes, exams, and a term project.

3 cr.

EE 430/EE 530 VLSI Design

Prerequisite: Pre- or corequisite EE 320. This is a course in VLSI design fundamentals. After successfully completing this course, students are familiar with two suites of CAD tools (Electric, an IC layout tool, and ICAPS, a circuit simulator) used in VLSI design, are familiar with process technology (MOSIS in this case), know the IC design process (including layout constraints), know how to model electronic device behavior as a function of layout geometry, know how to apply layout information to simulation models, know how to design and layout basic digital logic gates, are familiar with the layout and operation of analog systems (in particular, the operational amplifier), and be aware of the problems associated with mixed-mode IC design. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, design projects, a research project, and a final exam.

3 cr.

EE 431/EE 531 Semiconductor Device Modeling for VLSI

Prerequisite: EE 312 or equivalent. This course will describe the operation and characteristics of high speed devices: submicron silicon MOSFETS and Silicon Bipolar Transistors for high frequency and VLSI applications. It will also cover the basics of MESFETS and some high speed devices using compound semiconductors (HEMTs and HBTs).

3 cr.

EE 434 Electrical Energy Converters/ Inverters

Prerequisite: EE 206 and EE 303. Electrical converters are an important component in portable electronics (especially digital electronics) where there is a need to efficiently convert standard battery voltages to other DC levels. The converter can be considered a DC to DC transformer. The inverter is an important component in electrical energy storage and

management. The inverter takes the DC from such things as storage batteries and converts it to AC for distribution on a power network or to control electrical motors. Both devices play a major role in the management and distribution of renewable energy. This introductory course presents the foundation theory for analyzing and designing DC-DC converters (both buck and boost) as well as DC-AC inverters. Students will learn the various modeling schemes for switched electronic circuits starting with the idealized basics through to 'real world' practical complications. The course will also deal with how these devices have to be controlled to automatically compensate for changes in input energy and output loading (line and load regulation). To facilitate learning concepts and modeling various circuit topologies this course will make use of circuit simulation and mathematics software packages. Methods of assessing student learning include homework, quizzes, tests, and a short paper on some aspect of the material being studied.

3 cr.

EE 435/EE 535 Fuzzy Logic

Prerequisite: Junior standing. This course covers the fundamentals of fuzzy logic theory and its applications. Students learn to analyze crisp and fuzzy sets, fuzzy propositional calculus, predicate logic, fuzzy logic, fuzzy rule-based expert systems, and apply fuzzy logic theory to a variety of practical applications. Students also learn to use MATLAB computational software to understand new concepts and to perform and implement fuzzy logic rules and systems. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, design projects, and a final exam.

3 cr.

EE 437 Design Projects

Corequisite: EE 439 and approval of the department. Selected students work on an independent design project in the semester prior to enrolling in EE 440. This course is intended to provide students with the opportunity for a two-semester project sequence culminating with EE 440.

3 cr.

EE 439 Professional Awareness

Prerequisite: Senior standing. This course is designed to make students aware of some of the problems, concerns, and responsibilities of an engineer as a professional. In addition, students are guided in formulating a proposal for a Senior Design Project in preparation for

project work in EE 440. Students participate in discussions, led by invited speakers, on topics that enable students to write a professional résumé, interview for a job, generate an effective and substantive report, and make an effective technical oral presentation. Students are exposed to ethical issues in engineering environments, made aware of the necessity of protecting their work with either patents, copyrights, trademarks, and trade secrets and of not infringing on the similar rights of others; and apprised of issues of safety in the work place, product liability, and the importance of professional registration. Faculty and representatives from industry present ideas for Senior Design Projects and each student chooses a project, and develops and writes a project proposal with the supervision and guidance of a faculty advisor. The assessment in this course is based on students' participation in discussions, the submission of short papers on some of the issues raised in the presentations, and the quality of project proposal and the oral presentation. One class hour.

1 cr.

EE 440 Senior Design Projects

Prerequisite: EE 439. This is a capstone design course that prepares students for entry-level positions. In this course each student works on an independent engineering project under the supervision of a faculty advisor. Students apply the design process and communicate the results of their project work in both oral and written form. Oral reports are presented before an assembly of faculty and students. Students apply engineering design principles either by working on a product, improving a product, or designing experiments to investigate causes of either an observed phenomenon or a problem in engineering. Students are required to demonstrate their achievements using appropriate laboratory exhibits. Students who select industry-sponsored projects have the opportunity of working with the industrial advisor in an actual engineering environment. The assessment in this course is based on the student's level of commitment demonstrated throughout the semester, the level of achievement attained, the recording of activities in a log book, and the quality of the written report and oral presentation. Meeting hours by arrangement.

3 cr.

EE 445/EE 545 Neural Networks

Prerequisite: MATH 236 or concurrently. This is a study of the basic concepts of neural networks and its application in engineering. In this course students learn the single layer and multilayer neural network architectures; understand linear and nonlinear activation functions; and analyze and implement McCulloch-Pitts, Hebbian, Hopfield, Perceptron, Widrow-Hoff, ADALINE, delta, and back propagation learning techniques with ample practical applications. Students also learn to use MATLAB computational software to understand new concepts and to perform and implement neural network rules and paradigms. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, design projects, and a final exam.

3 cr.

EE 448/EE 548 Introduction to Electro-Optics

Prerequisite: MATH 236; EE 314 or equivalent. Electro-optics is the study of the effects of electric fields on optical phenomena. A study of light and basic geometrical and physical optics theory prepares students for investigation of the electronic and optical properties of light sources and detectors including LEDs, lasers, display devices, photo detectors, detector arrays, and charge transfer devices. After an investigation of electro-optics system design and analysis techniques, students develop an understanding of such applications as optical signal processing, electro-optics sensors, optical communications, optical computing, holography, integrated optics, display technologies, and fiber-optics. A design paper is required. Upon completion of this course, the student should understand the design and analysis techniques used in modern electro-optics systems and apply these methods in electro-optics applications. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, design projects, and a final exam.

3 cr.

EE 450/EE 550 Power Electronics

Prerequisite: EE 303 or equivalent. This is a course in the components and systems used in power electronics. After successfully completing this course students will be familiar with the types and uses of electronic power components as well as understanding and using the various analytical methods (including state space and piecewise linear) that model components and systems that

manage, control, and convert electrical energy. Topics include (but are not limited to) semiconductor power devices (such as diodes, SCRs, power FETs, etc.), energy conversion methods (such as ac-dc, dc-dc, dc-ac, etc.), converter electronics (such as buck, boost, etc.), conversion efficiency, and output regulation. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussion, a research project, and a final exam.

3 cr.

EE 455/EE 555 RF and Microwave Wireless Systems

Prerequisites: EE 314 or equivalent. This course provides an introduction to various RF and microwave system parameters, architectures and applications; theory, implementation, and design of RF and microwave systems for communications, radar, sensor, surveillance, navigation, medical, and optical applications. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 456/EE 556 RF and Microwave Active Circuit Design

Prerequisites: EE 314 or equivalent. The general objective of the course is to introduce students to the principles, processes, and techniques used in the design and realization of modern microwave and wireless active circuits. The course examines a variety of commonly used circuits including detectors, mixers, oscillators, and amplifiers that are the building blocks of all communication platforms. Throughout the semester, SerenadeSV, Sonnet Lite, and MATLAB will be used to emphasize and to help in understanding important concepts of the course as well as a tool for solving homework problems. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 457/EE 557 Wave Transmission and Reception

Prerequisites: EE 314. This course is designed to provide seniors/first year graduate students in electrical engineering with a solid foundation in applied electromagnetics. A review of transmission lines and the design of impedance-matching techniques will be explored. The application of Maxwell's equations to guided waves and radiation will also be explored. Throughout the semester, SerenadeSV, HFSS, and MATLAB will be used

to emphasize and to help in understanding important concepts of the course as well as a tool for solving homework problems. The primary methods of assessing student learning are homework assignments, quizzes, exams, and design projects.

3 cr.

EE 467/EE 567 Solid-state Electronic Devices

Prerequisite: EE 312. The electrical behavior of solids, or the transport of charge through a metal or semiconductor, is determined by the properties of the electrons and the arrangement of atoms in the solid. Through a study of the crystal structure of electronic materials and the fundamentals of quantum electronics, students understand the band theory of solids, particle statistics, transport phenomena, and conductivity. Further study of equilibrium distributions in semiconductor carriers and p-n junctions leads to an understanding of solid state device operation. The investigation of practical devices such as diodes, IMPATT diodes, bipolar and junction field-effect transistors, and MOS devices enhance students' knowledge of the design and analysis techniques used in real-world applications. A design project is required. Upon completion of this course students should be proficient in the use of solid-state component and system design techniques and are familiar with a wide variety of semiconductor device applications. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, design projects, and a final exam.

3 cr.

EE 470/EE 570 Computer-Controlled Systems

Prerequisite: EE 302 and MATH 236. Students learn the fundamentals of the state space approach to discrete systems modeling, analysis, and design. They also learn to find the discrete state space model of mechanical, electrical, and electromechanical systems, and learn how to solve zero input, zero state, and complete responses of a system represented in discrete state space form. In addition students learn to analyze stability, controllability, and observability of sampled data system and to design computer controlled feedback systems to improve performance of a discrete time systems as well as learning to design observers. Students also learn to use MATLAB computational software to understand new concepts and to perform and

implement discrete system analysis and design techniques.

3 cr.

EE 480 Internship in Electrical Engineering

See "Internships" on p. 31.

3 cr.

EE 485 Signal Processing

Prerequisite: EE 302 and MATH 236. This is an introductory course in digital signal processing. It provides the requisite background for an entry-level position in signal processing or for advanced study. After successfully completing this course, students are familiar with the basic theory and practice of digital signal processing. The course covers the theory of digital signal processing with emphasis on the frequency domain description of digital filtering: discrete Fourier transforms, flowgraph and matrix representation of digital filters, digital filter design, fast Fourier transform, and effects of finite register length. Classroom lectures are supplemented with implementation exercises using MATLAB and the DSP Hardware.

3 cr.

EE 490/EE 590 Special Topics in Electrical Engineering

This is a study of an advanced topic in engineering of special interest to electrical engineering majors, but not offered on a regular basis.

3 cr.

ENGL English

(College of Arts and Sciences)

Writing Requirements

English 100-level courses are open only to those students who have not completed their general University requirement of two courses in English writing with grades of "C" or better. A \$25 laboratory fee is charged for 100 level English courses.

The number of semesters of 100-level English required of each student depends upon the student's preparation at entrance and subsequent progress in achieving a level of competence adequate for the student's success in university writing assignments. Entering freshmen and transfer students are tested and placed at the level appropriate to their writing skills. Entering transfer students who have credit in freshman English, but who do not demonstrate writing competence, may be required to take further courses in English

writing. The general University requirement of a "C" or better in at least two English writing courses is satisfied by receiving a "C" in ENGL 131, ENGL 132, and in ENGL 133, or HON 102. Students who do not receive at least a "C" or better in each of the introductory courses will be required to take further courses in English writing. Students should take these courses in the freshman year.

Most entering freshmen take ENGL 132 English Composition I: College Reading and Writing, a standard course in essay reading and expository writing. Entering freshmen who demonstrate deficiency in basic writing skills are recommended for ENGL 130-131 or for certain sections of ENGL 132 and ENGL 133 that have a concurrent lab in writing fundamentals, LA 150. Students placed in ENGL 130-131 may have to take additional credits to fulfill graduation requirements in some programs. Students with exceptionally good writing skills may, with the recommendation of the director of composition satisfy their general university requirement by taking ENGL 133 and an upper level literature course.

Following successful completion of the introductory course, most students take ENGL 133 English Composition II: Introduction to Literature, an English course that includes a significant writing component. Students demonstrating exceptional ability in ENGL 132 may, with the permission of the director of composition and the approval of the dean of the College of Arts and Sciences, take an alternative literature elective if provided for in the curriculum of their respective schools. Satisfactory completion of this course fulfills the English writing requirement for these students.

Entering international students or students for whom English is not a first language are placed according to their skill level. Students who are at an intermediate level register for ENGL 100 English as a Second Language. They may be required to complete additional credits of English as a second language if they do not demonstrate competence in understanding and writing English. Students who demonstrate competence at an advanced intermediate level are placed in ENGL 132 or ENGL 133 with an accompanying support lab, LA 250 or LA 251. Students with exceptional skill are placed in a standard section of ENGL 132 or ENGL 133.

ENGL 130 English Composition IA: College Reading and Writing A

Prerequisite: Permission of the instructor. This is the first of a two-semester reading and composition sequence designed for students needing a review of English fundamentals. Topics include sentence structure, paragraph organization, fundamentals of grammar, writing papers using sources, the writing of expository essays, supporting a thesis, and strategies for critical reading of prose non-fiction. Note: Students placed in ENGL 130 may have to take additional credits to fulfill graduation requirements in some programs. Taught concurrently with LA 175.

3 cr.

ENGL 131 English Composition IB: College Reading and Writing B

Prerequisite: ENGL 130 or permission of the instructor. This is a continuation of ENGL 130. Further work is done in sentence and paragraph development, paper construction, grammar, and critical reading. Traditional modes of expository discourse are taught concurrently with LA 176. Successful completion will satisfy one general university requirement of a "C" in a 100 level English course.

3 cr.

ENGL 132 English Composition I: College Reading and Writing

This is a standard course in the techniques of essay reading and academic writing. The purposes of the course are to develop skill in reading prose nonfiction from a variety of disciplines, to develop skill in writing accurate and effective informative prose on a variety of subjects, using a variety of techniques, to develop sensitivity to language and writing, to understand conventions of citation and documentation, and to develop critical judgment of one's own writing and that of others. Particular attention is given to the importance of thesis, evidence, audience, and thoughtful revision. Students who are discovered to have marked deficiency in grammar, mechanics, and usage take, on recommendation, a concurrent lab in writing fundamentals, LA 150, that is linked to certain sections of ENGL 132 to raise them to a level of competence adequate to complete this course successfully. Not open to students who have completed an ENGL 140-level course.

3 cr. Laboratory fee \$25.

ENGL 133 English Composition II: Introduction to Literature

Prerequisite: A "C" in ENGL 131, 132, or ENGL 140-level, or the equivalent. This is an introduction to the analytic reading of literature including fiction, drama, and poetry with a strong emphasis on writing and elementary literary analysis. Particular attention is paid to conventions of citation and documentation. Not open to students who have completed an ENGL 150-level course. Some sections are taught concurrently with LA 151.

3 cr. Laboratory fee \$25.

ENGL 139 Writing for Special Purposes

Prerequisite: a "C-" in ENGL 132 or 133. Building on the work taught in ENGL 132 or ENGL 133, students work under the guidance of a professor to communicate a central idea and organize a substantial amount of supporting material in a format different than those stressed in the introductory courses. A "B" in this course will offset the "C-" in the 100 level course, allowing the student to satisfy one General University Requirement of a "C" in a 100 level English course. May be taken more than once.

1 cr. Laboratory fee \$25.

ENGL 214 World Literature I

Prerequisite: Sophomore standing and two courses in English writing with grades of "C" or better. Students read selections from the time of Homer to the nineteenth century. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 215 World Literature II

Prerequisite: Sophomore standing and two courses in English writing with grades of "C" or better. Students read selections from significant writers of the last 200 years. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 223 African American Literature I

Prerequisite: Sophomore standing and two courses in English writing with grades of "C" or better. An introduction to African American literature from colonial times to 1865, covering poetry, fiction, drama, and nonfiction prose such as slave narratives, memoirs, sermons, and speeches. The cultural context of the literary period will be explored. The course will cover such authors as Phyllis Wheatley, Sojourner Truth, Frederick Douglass, Nat Turner, and others. This course satisfies the

Humanities literature for Arts and Sciences students.

3 cr.

ENGL 224 African American Literature II (Formerly ENGL 318)

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. An introduction to African American literature from the era of Reconstruction to the present, covering poetry, fiction, drama, and nonfiction prose such as memoirs, sermons, and speeches. The cultural context of literary periods will be explored. The course will cover such authors as Booker T. Washington, W.E.B. DuBois, Langston Hughes, Countee Cullen, Gwendolyn Brooks, Zora Neale Hurston, Ralph Ellison, Richard Wright, Maya Angelou, James Baldwin, Toni Morrison, Malcolm X, and Martin Luther King Jr. This course satisfies Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 231 British Literature I

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This is a critical survey of selected texts in British literature from its origins to 1780. Emphasis is on major traditions and on major writers such as Chaucer, Marlowe, Donne, Jonson, Milton, Dryden, Swift, and Johnson. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 232 British Literature II

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This is a critical survey of selected texts in British literature from the Romantic period to 1945. Emphasis is on major traditions and on major authors such as Wordsworth, Coleridge, Byron, Keats, Shelley, Austen, Tennyson, Browning, Arnold, Dickens, Conrad, Lawrence, Shaw, and Yeats. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 237 Creative Writing

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This is a course designed for students who wish to write “creatively.” Emphasis is on writing poetry and short fiction. Open to all majors. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 249 Tutoring Seminar

Prerequisite: Sophomore standing and “C” or better in two 100-level writing courses. This course is designed to develop interpersonal teaching and communication skills necessary for tutoring writing in the various disciplines. Students will study and analyze current writing theories, various writing genres, revision strategies, documentation style systems, and a variety of tutoring methods such as proper questioning, positive reinforcement, nonverbal communication, active listening, student differences, learning styles, and assertiveness training. Through the required one-on-one and small-group field experience sessions, the seminar students will receive additional education and training as peer tutors by observing, participating, analyzing, and reflecting on tutoring sessions and on the tutoring process. Lastly, they will enhance their own writing, listening, speaking, critical thinking, and collaboration skills by reflecting on and writing about their tutoring experiences.

3 cr.

ENGL 251 American Literature I

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This is a study of American literature in the following periods: Colonial, Revolutionary, Nationalism, Romanticism, and the American Renaissance. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 252 American Literature II

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This is a study of American literature 1860- the present. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 253 Love, Death, and Power in Twentieth Century Spanish American Literature (in English translation)

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This is a study of 20th century Spanish American works (in English translation) for the purpose of analyzing the treatment of the themes of love, death, and power. By focusing upon these universal themes, students gain insights into the cultural uniqueness of the Spanish American vision. The works examined represent three different literary genres: short

story, poetry, and novel. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 255 Gay and Lesbian Literature

Prerequisite: Sophomore standing and two courses in English writing with grades of “C” or better. This course will explore examples of twentieth century gay and some lesbian literature and how this literature evokes our responses to the humanity of its protagonists. We will focus on issues of divergence as they are fleshed out through literary expression. In our focus on gay-lesbian narratives, we will pay special attention to the depiction of individuals whose daily lives and self-identities are inextricably interwoven into the contexts of their families and society. These narratives convey to the reader the de facto societal and familial definitions of gay-lesbian individuals as divergent and frequently as perversely antagonistic to society’s norms. This course satisfies the Humanities literature requirements for Arts and Sciences students.

3 cr.

ENGL 260 Literary Horizons

Prerequisite: Two course in English writing with grades of “C” or better. Required in Elementary Education program. This course is an introduction to the learning standards in the literature strand of the Massachusetts Curriculum Frameworks and to the application of those standards to literary works. It will present potential elementary teachers with the background information necessary to apply the standards to works from our “Common Literary Heritage,” as suggested by the Massachusetts Department of Education.

3 cr.

ENGL 290-299 Special Topics in English

Topics in English that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies. Three credit literature courses satisfy the Humanities literature requirement for Arts and Sciences students.

1-3 cr.

ENGL 302 Approaches to the Study of Literature

Prerequisite: Junior standing or permission of English chair and A “C” or better in two 100-level English classes and one literacy survey. This course will explore contemporary literacy and cultural studies. Students will read primary texts that have had a major influence on the interpretation of literature (Freud, Marx, and

others), explore the development of major critical “schools” of thought, and learn to consider texts from a variety of perspectives. This course will have students study, share, and question contemporary approaches to literature and the literary term associated with those critical approaches, while also creating and sharing a close analysis of a particular literary work. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 310 Modern Drama

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a study of 19th and 20th century drama including dramatists such as Ibsen, Chekhov, Shaw, Strindberg, Sartre, Beckett, Ionesco, Brecht, Pirandello, Williams, Albee, Garcia, Lorca, and Genet. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 311 The English Language

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is an overview of the structure and history of the English language, and of its variation in different speech communities. Dual listed as COMM 311. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 312 Chaucer and His Age

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a study of Chaucer as literary artist and critic of his age. Emphasis is on *The Canterbury Tales*, materials describing the world of the 14th century, and the oral presentation of Chaucer’s verse rather than a linguistic analysis of Middle English. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 314 Shakespeare: Plays and Poems

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course surveys all of Shakespeare’s work. Plays from all four dramatic genres (history, comedy, tragedy, and romance), representative sonnets, and selections from the two narrative poems will be read and discussed. This course

satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 315 Shakespeare: The Tragedies

Prerequisite: Junior standing or permission of English chair and two courses in English writing with grades of “C” or better. This course consists of intensive reading and discussion of Shakespeare’s major tragedies. It satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 316 Shakespeare: The Comedies and Histories

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course consists of intensive reading and discussion of Shakespeare’s major comedies and history plays. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 319 Early 17th Century Prose and Poetry

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a study of nondramatic poetry and prose from 1600 to 1660 including works by authors such as Bacon, Donne, Herbert, Marvell, and the young Milton. The political, intellectual, and religious currents of the period are included. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 322 19th Century American Literature

Prerequisite: Two 100-level writing courses with a grade of “C” or better. This is a critical survey of 19th century American fiction and poetry. Readings cover major writers such as Cooper, Emerson, Hawthorne, Melville, Dickinson, Whitman, Jewett, James, Wharton, and Twain amidst other significant authors. The course will give students an understanding of major literary trends of the period—including the transcendentalist, romantic, and regionalist traditions—in the context of important cultural developments of the period. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 327 Literature and Culture in England, 1780-1832

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course examines the literary movement known as “romanticism” with attention to relevant cultural contexts (French Revolution, industrial development in England, British Nationalism/Imperialism). Students will read poetry, essays, and fiction by authors such as Edmund Burke, Mary Wollstonecraft, Anna Barbauld, William Wordsworth, Samuel Taylor Coleridge, Jane Austen, John Keats, and Percy Shelly. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 328 Literature and Culture in England, 1832-1890

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a continued study of the significant attitudes and problems of the 19th century as expressed in poetry and prose. Readings are drawn from authors such as Carlyle, Mill, Tennyson, Dickens, Arnold, Hardy, and others. This course satisfies the Humanities literature requirements for Arts and Sciences students.

3 cr.

ENGL 329 Readings in 20th Century British Literature

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course is a study of selected authors, writings, issues, and ideas that have been associated with British “modernism.” The focus is on both texts and contexts, recognizing and including in the analysis the sociopolitical, philosophical, religious, and literary influences at play in the early 20th century. Students will read poetry, essays, and fiction by authors such as Wilde, Yeats, Joyce, Eliot, Woolf, and others. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 333-334 Independent Study in English

See “Independent Study” on p. 30.

1-3 cr.

ENGL 336 Ethnic American Literature

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a critical study of the literature from American

underrepresented writers: Black, Native, Hispanic, Asian, and Jewish Americans. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 338/411 Major Authors

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. Investigating the important work of one to three major authors, this course will focus on the close reading of texts with attention, where appropriate, to the intellectual and cultural milieu. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 339 Children’s Literature

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. ED 350 for students in Education program. The course is an introduction to the field of children’s literature. Its focus is primarily literary in nature, exploring the diverse literature written for children and young adults through reading, storytelling, meeting authors, and discussing works in class. Students are also introduced to the graphic artistry accompanying much of the literature and to a variety of cultures and traditions depicted in word and picture. The course furthers students’ understanding of children and of the important role of home and school in literacy development. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 341 Caribbean Writers

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. A survey of major Caribbean writers in both English and translation. Poetry, fiction, drama, and the oral traditions will be studied. Where appropriate, the cultural context of the works of literature will be explored. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 343 Literature of Africa and the African Diaspora

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. The African continent encompasses many traditions; this course will introduce and study some of the major figures as well as the contexts in which

they wrote. The relationship between African writers and writers of the African Diaspora (African American literature, Caribbean literature, Black British literature, etc.) will be delineated comparatively. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 345 Major African American Writers

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course will concentrate on African American writers such as Richard Wright, Ralph Ellison, Toni Morrison, Toni Cade Bambara, and others who have contributed significantly to the African American Literature. Most readings will be novels but the short fiction of these writers will also be selectively read. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 351 Fiction Workshop

Prerequisite: A grade of “C” or better in two 100-level writing classes, and junior standing or permission of chair. In *Is Nothing Sacred*, Salman Rushdie writes, “The geniuses of the novel are those whose voices are fully and undisguisedly their own, who, to borrow William Gass’s image, sign every word they write. What draws us to an author is his or her unlikeness.” The goal of this workshop will be to tune into the texture of a writer’s sentences, to learn what makes it different than anyone else’s writing. We will read student manuscripts as well as assigned novels and look at the way the works are put together, how time passes, how character is presented, the distance between the narrator and reader, the writer’s inclination toward scene and narrative, how much of the novel is exposition as opposed to scene, and more. We will learn as much as we can about the craft of the novels, then forget everything and write. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 352 Poetry Workshop

Prerequisite: A grade of “C” or better in two 100-level writing classes, and junior standing or permission of chair. This course is an upper level poetry workshop, concentrating on methods of creating and revising original poems to publishable quality. The objective is to encourage imagination; to learn what has already been tried and to play with new

approaches, sources of inspiration, twists, and spins rather than repeating old ways; to understand and use different techniques of writing imaginatively in your own work and in analyzing creative work by others. The goal is to enlarge a critical vocabulary as well as an everyday one; to gain an ability to use poetic devices and poetic forms and to determine where, why, and how they are most useful. The workshop also seeks to increase knowledge of the historic development of poetry in the English and American traditions and to add to that tradition in your writing. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 353 Twentieth Century Poetry

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a study of the dominant themes and innovative techniques in British and American poetry from 1900 to 1950 with particular attention to Yeats, Eliot, and Frost. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 354 Creative Non-Fiction Workshop

Prerequisite: A “C” or better in two 100-level writing classes, junior standing or permission of chair. This course is a genre which uses literary techniques to write about factual events, real people, and actual places. It can include nature and travel-writing, memoir, essay, biography, and literary journalism, as well as scripts for documentary films. Students will practice a variety of nonfiction writing skills such as researching, interviewing, drafting, and revising, with the aim of completing three articles of publishable quality; they will also consider how to tailor their writing so as to place it in an appropriate publication. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 355 The Development of The Novel

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course is a critical examination of the novel as an art form, from its origins to the 20th century. Emphasis is on major writers of the 19th and 20th centuries: American, British, and European. Works selected are by major authors such as Fielding, Austen, Bronte, Dickens, Eliot, Hawthorne, Flaubert,

Dostoevsky, Tolstoy, Melville, Hardy, James, Conrad, Forster, Hemingway, and Faulkner. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 357 Twentieth Century American Literature

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This is a critical survey of 20th century American fiction, poetry, and drama. Emphasis is on major writers such as Wharton, Fitzgerald, Hemingway, Steinbeck, Faulkner, Cather, and Morrison. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 358 Women in Literature

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. The purpose of the course is to introduce students to a rich representation of women’s writing from a variety of genres and periods, when only few women wrote. Through the careful study of works by women with courage and eloquence, this course may become an experience of discovery for all of us—men and women alike. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 366 Crime and Punishment

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course examines a diversity of crimes and their punishments in selected works of Western Literature. Unlike popular detectives and TV shows where the emphasis is on “whodunit,” literature often identifies the criminal at the outset and explores, in unparalleled depth and richness, his or her inner landscape: motives, conscience, reckoning, and growth. Through the study of crime in literary works spanning centuries, from Biblical stories and Greek tragedy through Shakespeare and Dostoevsky to contemporary literary criminals, this course will enhance our understanding of the psychological and moral complexity of crime in its diverse human and literary dimensions. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

ENGL 376 World Short Stories

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course studies stories written since about 1945 and from a variety of cultures around the world. This course satisfies the Humanities literature for Arts and Sciences students.
3 cr.

ENGL 386 Biblical Heroes

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. This course studies heroes and their families from the Hebrew Bible (in English). This course satisfies the Humanities literature requirement for Arts and Sciences students.
3 cr.

ENGL 390-399 Special Topics in English

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. Topics offered depend upon student interests as well as particular interests of instructors. This course may be repeated for credit if topic differs. Three credit literature courses satisfy the Humanities literature requirement for Arts and Sciences students.
1-3 cr.

ENGL 410 English Seminar

Prerequisite: Senior standing and two courses in English writing with grades of “C” or better. Intended primarily for English literature majors, this course is designed to enlarge and deepen the students’ understanding of literary form and to enlarge their understanding of the human concerns that literature may treat.
3 cr.

ENGL 411/338 Major Authors

Prerequisite: Two 100-level writing courses with a grade of “C” or better and junior standing, or permission of English chair. Investigating the important work of one to three major authors, this course will focus on the close reading of texts with attention, where appropriate, to the intellectual and cultural milieu. This course satisfies the Humanities literature requirement for Arts and Sciences students.
3 cr.

ENGL 480-481 Internship in English

See “Internships” on p. 31.
1-3 cr.

ENGR Engineering

(College of Engineering)

ENGR 102 First Year Engineering Seminar

Prerequisite: Freshman status in engineering. This is a course designed to introduce first-year engineering students both to the engineering profession and to the practice of engineering as it relates to their university experience. It enables students to further develop academic and life management skills and to learn how to use University resources. Students will be assessed through performance on homework, written reports, and by participation in course activities.
1 cr.

ENGR 103 Introduction to Engineering

Prerequisite: Freshman status in engineering and basic level computer literacy. This course is designed to introduce first-year engineering students to the engineering profession and its practices. The students complete various projects, including a major design project. Through these projects and other activities, the students learn about computer aided visualization, engineering analysis, sketching, critical thinking, ethical decision making, the design process, how to work in a team environment, problem formulation, design evaluation and selection, teamwork, oral presentation skills, and effective writing. Students are assessed through performance on projects, exams, quizzes, homework, written reports, and oral presentations.
4 cr.

ENGR 105 Computer Programming for Engineers

Prerequisite: Freshman status in engineering or permission of instructor. This is an introductory course in the design of software solutions to engineering problems using software capable of being programmed by the user. Students learn procedural approaches to designing small to medium-scale programs. After successfully completing this course, students understand the issues involved in moving from a general problem statement to a software solution. Students learn a variety of software design solution techniques. They develop skills in logic, algorithm design, and data structure design and debugging. They apply these skills to a variety of engineering, mathematical, and numerical method problem areas. The methods of assessing student learning in the course are homework assignments; weekly

quizzes; in-class, project-type programming assignments; and exams.

3 cr.

ENGR 110 Data Acquisition and Processing

Prerequisite: Freshman status in Engineering or permission of instructor. This is an introductory course in computer-aided data acquisition and processing. Through a series of studio experiences, students will learn the principles necessary to design, implement, and analyze computer-controlled experiments. Industry standard LabVIEW along with National Instruments DAQ hardware will be the learning platform for this course. The methods of assessing student learning in the course will be homework assignments, weekly quizzes, laboratory experiments, and exams.

2 cr.

ENGR 333 Independent Study in Engineering

See "Independent Study" on p.30.

1-3 cr. per semester

ENGR 480-481 Internship in Engineering

See "Internships" on p. 31.

3 cr.

ENVS Environmental Science

(College of Arts and Sciences)

ENVS 301 Waste Management

Prerequisite: Junior standing, CHEM 105, and four additional credits of laboratory science. This is a technical and socio-political overview of the decisions often faced with regard to types and quantities of waste produced and the disposition of those wastes. Students are educated in the scientific, legislative, and personal dimensions of waste management, especially hazardous wastes, and discuss technical alternatives and obstacles to implementing them. Offered in alternate years.

3 cr.

Film

(College of Arts and Sciences)

(All FILM courses satisfy Aesthetic Perspective Requirements)

FILM 102 The History of Film

This course is an introduction to the history of film from its beginnings to the present moment, with a concentration on the American context. We will examine changes in film form and content as the medium reacts to the cultural,

political, social, and technological changes in the world of which it is a part.

3 cr.

FILM 103 The Art of Film (Formerly FILM 203)

Prerequisite: ENGL 132 or equivalent. Cinematography as a world-wide cultural movement of the 20th century is studied. Works from different countries are studied to illustrate the historical development of the art of the film.

3 cr.

FILM 201 Studies in Mainstream Film Genres (Formerly FILM 301)

Prerequisite: Sophomore standing. This course focuses on a single film genre that is historically significant. The course considers genres like the Western, Melodrama, Film Noir, Romantic Comedy, and Horror. The class will focus on enduring generic features and the changes to those same generic features over time that have taken place.

3 cr.

FILM 202 The Haunted Screen (Formerly FILM 302)

Prerequisite: Sophomore standing. A cinematic investigation of good, evil, nature, science, and gender through narratives of monstrous transformations. Films may include *Frankenstein*, *Alien*, *Them*, *Dracula*, *The Exorcist*, and *The Silence of the Lambs*.

3 cr.

FILM 210 Mass Media in Film (Formerly 310)

Prerequisite: Sophomore standing. A critical investigation of how mass media are portrayed in such films as *Citizen Kane*, *Radio Days*, *Atomic Café*, *Quiz Show*, *Network*, and *The Truman Show*.

3 cr.

FILM 212: Women and Film

Prerequisite: Sophomore standing. This course will examine the representation of women in different types of cinema and the filmic structures that shape the way viewers look at women on screen. Mainstream narrative films will be viewed, paying special attention to the roles women play and the way film asks viewers to look at them. Alongside the films, texts will be read that draw from film criticism, feminist film theory, and some more general feminist writing. These films and readings will be used to develop a critical vocabulary, after which a look at films (and videos - narrative, documentary, and experimental) made by women and feminists will be taken. These

films will then be compared to those we've seen in the first section of class. How are they similar?

3 cr.

FILM 290 Special Topics in Film

Topics in film that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

FILM 312 International Cinema

Prerequisite: Junior standing. This course studies films made in a variety of countries outside the United States.

3 cr.

FILM 320 Introduction to Cinema Production

Prerequisite: Two English writing courses with a grade of "C" or higher. An introduction to the fundamentals of motion picture production, including dramatic development, visual storytelling, editing, and directing.

3 cr.

FILM 321 Introduction to Screenwriting

Prerequisite: Two 100-level writing courses with a grade of "C" or better and junior standing, or permission of English chair. An introduction to writing for the screen. Topics include 3-act structure characterization, dialogue, theme, and pitching.

3 cr.

FILM 340 Director's Signature

Prerequisite: Junior standing. This course will consider the body of work attributed to individual directors whose work has come to be considered canonical and innovative. Directors include Alfred Hitchcock, John Ford, King Vidor, Robert Altman, and Francis Ford Coppola.

3 cr.

FILM 390 Special Topics in Film

Topics in film that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

FIN Finance

(College of Business)

FIN 214 Introduction to Finance

Prerequisite: MATH 111, MATH 112 or MATH 115, MATH 116 or MATH 123, MATH 124, AC 201 or concurrent. This course introduces the business student to the broad financial world consisting of financial management, financial markets, and investments. Key outcomes

include a basic understanding of investment vehicles such as stocks, bonds, and mutual funds, the ability to value future cash flows emanating from securities and projects, the ability to analyze financial statements and the ability to apply elementary working capital management concepts. Offered fall and spring semesters.

3 cr.

FIN 312 Financial Markets and Institutions

Prerequisite: FIN 214, EC 111, and EC 112. This course studies the institutions and markets that raise and allocate funds in modern economies in the context of interest rate determination and risk allocation. Key outcomes include the ability to use duration to manage fixed income financial instruments including their derivatives, and an understanding of the management of financial intermediaries in the contemporary regulatory environment. Offered in the fall semester.

3 cr.

FIN 320 Intermediate Corporation Finance

Prerequisite: FIN 214. This course provides the student with an understanding of finance theory and a working knowledge of financial strategies. Key outcomes include the ability to perform corporate-level financial analysis, to pursue value-based management, to perform capital budgeting, to determine cost of capital, and to make both short-term and long-term financing decisions. Offered in the fall semester.

3 cr.

FIN 322 International Finance

Prerequisite: FIN 214, EC 111, and EC 112. This is a study of the international dimensions of financial management. Key outcomes include a knowledge of international financial markets; the ability to measure and control economic, contractual, and translation risk; the ability to engage in international working capital management; and a knowledge of how funds are secured internationally. Offered in the spring semester.

3 cr.

FIN 330 Financing Entrepreneurial Ventures

Prerequisite: FIN 214. This course covers various aspects of finance in an entrepreneurial venture. Major topics include attracting seed and growth capital from sources such as venture capital, investment banking, government, and commercial banks. Among the issues discussed are different legal forms of organization, taxes, valuing a company, and exit strategies (going public, selling out,

acquisitions, and bankruptcy). Offered in the fall semester.

3 cr.

FIN 333-334 Independent Study in Finance

See "Independent Study" on p. 30.

3 cr.

FIN 340 Introduction to Financial Planning

Prerequisite: EC 111, AC 201, and FIN 214. Financial planning requires integrating different kinds of financial information and understanding the consequences of these decisions. Key outcomes of this course are an ability to identify and integrate the principles and techniques of budgeting and accounting, insurance, investments, loans, estate planning, and related topics as they would be approached by a CFP (Certified Financial Planner). Offered in the spring semester.

3 cr.

FIN 350 Advanced Corporation Finance

Prerequisite: FIN 320. The key outcome of this course is the ability to apply the concepts and tools of financial management learned in FIN 214 and FIN 320 to real-world situations. Students will also learn to explain their decisions through written and oral communication. Offered in the spring semester.

3 cr.

FIN 375 Non Profit Board Field Experience I

Prerequisites: Permission of instructor and junior standing in the College of Business. This is the first semester of a two semester course sequence. Students must successfully complete FIN 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the first semester students will attend board meetings and become oriented to the organization.

1 cr.

FIN 376 Non Profit Board Field Experience II

Prerequisite: FIN 375 and permission of instructor and junior standing in the College of Business. This is the second semester of a two semester course sequence. Students must successfully complete FIN 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure

to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the second semester students become involved with a member of the board in a project area.

2 cr.

FIN 390 Special Topics in Finance

This is a study of advanced topics in finance of special interest to finance majors but not offered on a regular basis.

3 cr.

FIN 417 Investments

Prerequisite: FIN 214. This course is a study of the theories of risk and return that underlie decisions about the allocation of wealth among competing investment vehicles. Key outcomes include the ability to measure and manage risk and return as it applies to equity securities and their derivatives through modern portfolio diversification techniques. Offered in the fall semester.

3 cr.

FIN 418 Security Analysis

Prerequisite: FIN 417. This course is a study of how publicly available information can be used to determine both the intrinsic value and credit worthiness of a business enterprise. Key outcomes include the ability to perform professional level financial statement analysis, industry analysis, and risk assessment. Offered in the spring semester.

3 cr.

FIN 480-481 Internship in Finance

See "Internships" on p. 31.

3 cr.

FR French

(College of Arts and Sciences)

FR 101 Elementary French Conversation I (Formerly FR 101 Elementary French I)

This is an "immersion" course in French language and culture using the innovative Capretz French in Action method that combines video, audio, and print materials. Digital audio program on CD-ROM used. One hour of lab per week. Offered every fall.

3 cr.

FR 102 Elementary French Conversation II (Formerly FR 102 Elementary French II)

Prerequisite: FR 101 or the equivalent. This is a continuation of French in Action. Digital audio

program on CD-ROM used. One hour of lab per week. Offered every spring.

3 cr.

FR 190 Special Topics in French

Topics in French that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

FR 203 Intermediate French Conversation I (Formerly FR 203 Intermediate French I)

Prerequisite: FR 102 or the equivalent. This is a continuation of French in Action. Digital audio program on CD-ROM used. Offered every fall.

3 cr.

FR 204 Intermediate French Conversation II (Formerly FR 204 Intermediate French II)

Prerequisite: FR 203 or the equivalent. This is a continuation of French in Action. The emphasis is on fluent oral reports based on articles from current French publications. Digital audio program on CD-ROM used. Offered every spring.

3 cr.

FR 290 Special Topics in French

Topics in French that are not offered on a regular basis are studied. The course may be repeated for credit if the topic varies.

1-3 cr.

FS Forensic Science

(College of Arts and Sciences)

FS 152 Crime, Science, And Justice. How Forensic Science Has Shaped The Modern Criminal Justice System

In the United States since 1989, there have been hundreds of post-conviction DNA exonerations in criminal cases. These exonerations have taken place across the entire country and are not limited to geographical areas. Many of those exonerated were serving sentences on Death Row awaiting execution at the time of their exoneration and served an average of 12 years in prison before their release. This course will present the background, causes, and processes to prevent unjustified convictions in future criminal cases. Actual cases will be studied in detail. The course is presented to all students as an informative modern day discussion on this important topic.

3 cr.

FS 201 Introduction to Forensics

Prerequisite: CJ 101 and FB or FC major or permission. This course introduces students

to the criminalistics concepts of crime scene procedures, techniques, and reconstruction pattern analysis. Even though this course is designed for students who have little or no science background, basic scientific measurements will assist in understanding the methods behind forensic science and its application to the legal system. Usually associated with law enforcement, the forensic scientist plays an increasingly active role in the civil and criminal justice arenas. Two lecture hours, one three-hour lab.

3 cr.

FS 240 Scientific Evidence

Prerequisite: FS 201, BIO 107/117, and CJ 101. This course introduces the forensic science major to the theories of scientific evidence. After a brief study of the history, theory, and application of the rules of evidence in complex civil and criminal matters, the course will specifically focus on the procedures of qualification of expert witnesses and various scientific disciplines relative to the admissibility of expert testimony and scientifically-based evidence through each stage of a legal proceedings. The course will include both the civil and criminal trial processes, definitions of scientific evidence, and qualification of expert witnesses. These topics and the procedures for validating scientific evidence disciplines will be studied in detail through actual case studies from various U. S. judicial jurisdictions.

3 cr.

FS 310 Crime Scene Processing

Prerequisite: FS 201, FS 240, and CHEM 209/219. This course presents a detailed study of crime scene investigation through the eyes of the forensic scientist. The course, for the forensic science major, illustrates the role of the forensic scientist in responding to the crime scene and follows an investigation through the trial process. A major focus will be evidence recognition, documentation, and collection techniques at the crime scene. A detailed analysis of the developing common law is included so that the student will be immersed in the legal processes of major criminal investigations.

3 cr.

FS 325 Criminalistics I

Prerequisite: FS 310 and CHEM 210. This is an in-depth study of the recognition, collection, processing, and examination physical evidence typically found at crime scenes. Emphasis is placed on the laboratory techniques used in studying physical evidence. Topics are drawn

from biology, chemistry, and physics. Two lecture hours, and one three-hour lab.

3 cr.

FS 426 Criminalistics II

Prerequisite: FS 325 and CHEM 210. This course is designed to provide students with a strong theoretical and experimental background in forensic science applications and techniques, including proper documentation and communication of laboratory data. Through an integrated lab-lecture approach, the chemical, biological, and physical processes underlying the sampling, storage, and analysis of evidence will be studied. Laboratory fee.

4 cr.

FS 480 Internship in Forensic Science

See "Internships" on p. 31.

1-3 cr.

GEOG Geography

(College of Arts and Sciences)

GEOG 101 World Geography

This course helps students see how a working knowledge of geography can be useful in better understanding the world around us. It provides an introduction to the concepts and theories geographers use to interpret spatial relationships between physical landscapes, climate, and human populations. Cases will be drawn from different regions of the world to illustrate both historical and contemporary geographic patterns on a global scale.

3 cr.

GEOG 110 Geography of United States and Canada

This course is an introduction to the discipline of geography that offers case studies and analysis from the United States and Canada. Themes covered in this course include surveys of physical features of the region, historic settlement and population patterns, agriculture and extractive industries, manufacturing organization, transportation systems, urbanization, environmental impact, and cultural geography.

3 cr.

GEOL Geology

(College of Arts and Sciences)

GEOL 101 Physical Geology

This is a systematic study of the planet Earth with emphasis on the forces, processes, and materials that are responsible for the more

familiar land forms. Two class hours, three-hour lab or field trip.

3 cr. Laboratory fee \$50.

HIST History

(College of Arts and Sciences)

HIST 105 World Civilization I

This course is an introductory survey of world history to 1500. Focusing on the rise of the world's major civilizations and religions. The emphasis is on the social and political history of Europe, Asia, Africa, and the Americas.

3 cr.

HIST 106 World Civilization II

This course is a survey of world history from 1500 to the present. Major themes explored include the rise to dominance of Western society, colonialism, industrialism, decline of colonial empires, and the rise of new states in the Third World.

3 cr.

HIST 111 United States History to 1877

This is an introduction to U.S. history with special emphasis on the colonial period, the American Revolution, the New Nation, Westward Expansion, the Civil War, and Reconstruction.

3 cr.

HIST 112 United States History, 1878 to the Present

This is a survey of U.S. history with special emphasis on economic revolution, U.S. involvement in World War I, the Great Depression, the New Deal, World War II, the Cold War, and contemporary America.

3 cr.

HIST 140: Stonehenge to Spice Girls: A Brief History of England

This course offers a one-semester introduction to the history of England from prehistory to the present with an emphasis on social history. It is intended primarily for non-history majors.

3 cr.

HIST 190 Special Topics in History

Topics in history that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

HIST 201 Technology and Society

This course examines the influence of technology on the development of the modern world. Technological changes have given rise to particular forms of economic and business

organization, shaped cultures, allowed the rise of mass society, and had significant political ramifications. The course will use several technological breakthroughs as case studies to examine these effects.

3 cr.

HIST 204 Ancient Greece and Rome, 1000 BCE-300 CE

This course will cover the rise and fall of classical civilization in the Mediterranean from the Heroic Age in Greece through the decline of the Roman Empire, with particular emphasis on life in the cities of Athens and Rome.

3 cr.

HIST 208 Medieval Europe, 300-1300 CE (Formerly HIST 308)

This course covers European history from the fall of Rome to the beginnings of the Italian Renaissance and explores the social, political, and cultural changes that took place during this period. Note: this course replaces HIST 307 and HIST 309 and cannot be taken for credit by students who have already taken either of those courses.

3 cr.

HIST 212 London through the Ages

This two-week summer course taught in London covers the history and culture of the city from the Roman period to the present day, and features extensive exploration of the city and its historic sites. Note: This course is also equivalent to ART 212 and satisfies either the cultural studies perspective or historical perspective requirement.

3 cr.

HIST 232 Early Modern Europe 1500-1815

This course surveys the cultural, intellectual, social, political, and economic changes in Europe between 1500 and 1815. Central themes include the contemporary understanding of the human person, class status, gender roles, local identity and the wider world known to early modern Europeans. The course considers topics such as the Protestant and Catholic Reformations, absolutism, colonialism, the scientific revolution, the enlightenment, the French Revolution, the Napoleonic period, and the advent of industrialization.

3 cr.

HIST 233 Modern European History, 1815-present

This course examines the history of modern Europe from the Congress of Vienna to the present from a political, social, cultural, and

intellectual history perspective. Dominant themes include nationalism, wars and revolutions, science and industry, socialism, fascism, the welfare state, feminism, the European Union, and globalization.

3 cr.

HIST 250 Colonial America

This course examines the people and events that shaped America in the years before the creation of the United States. Because the traditional focus on the English experience overlooks the influential roles of other European nations and indigenous peoples in the process of colonization, we will begin with Columbus's "discovery" of the New World and study Spanish, French, and Dutch influences on America along with the English colonization effort. The role of various Native American societies in shaping colonial America, both as rivals and allies, will also receive extensive attention.

3 cr.

HIST 251 Early American Women's History to 1865

The purpose of this course is to introduce students to the diverse experiences of women in American history, which until recent decades had been largely ignored. Today, however, women's history and gender studies are two of the fastest growing and most promising fields of historical inquiry, offering students new perspectives on the nation's past and providing them with a framework to assess their own lives. This particular course will focus on the early years of American history, roughly from the 1500s to the 1860s, and cover such topics as colonial gender roles, the impact of the Revolution on women's status, gender and slavery in the Old South, and women's roles in opening the West.

3 cr.

HIST 253 War and American Society

From the woodlands of New England to the muddy trenches of France, war waged in support of American civilization has often transformed the very society and values it was meant to protect. This course examines the changes warfare has wrought upon American society from its origins in the colonial era through the emergence of modern warfare in the early twentieth century. Topics addressed include the cultural implications of war in Native American societies, the controversy over standing armies during the Revolution, antiwar sentiment, women in war, and the

impact of technology upon American military strategy.

3 cr.

HIST 254 Civil War and Reconstruction (Formerly HIST 354)

This is an examination of the Peculiar Institution, the anti-slavery movement, the intensification of sectionalism, the secession crisis, why and how war came, the course and conduct of the war, and the reconstruction of the nation.

3 cr.

HIST 259 The United States in Vietnam (Formerly HIST 359)

This course examines U.S. policy in Vietnam within the context of Vietnamese history and culture with special emphasis on Vietnamese nationalism, the French colonial period, both Indochina Wars, and the evolution of U.S. policy from the Truman presidency through the Nixon administration.

3 cr.

HIST 260 The History of Pre-Colonial Africa

This is a thematic survey of the history of Africa up to the late 1890s with special emphasis on the Neolithic revolution, the rise of African states, the trans-Atlantic slave trade, and the prelude to colonialism.

3 cr.

HIST 261 Africa in the Twentieth Century

This course examines the origins of colonialism and the conquest of Africa. The development of colonial society and economy is explored on a regional basis. The course ends with the rise of new independent African states.

3 cr.

HIST 270 Colonial Latin American History

This course is an introduction to the history of the Spanish and Portuguese possessions in America from just before the Europeans' arrival to independence (1400-1830). We will examine the major themes of pre-colonial and colonial Latin American history, including: the encounter between Old and New World societies; the transformation of indigenous economic, social, political, and religious structures; the creation of new political and economic institutions; the development of a new international economy; and the shifting racial, political, and social identities that developed in the wake of European settlement of areas with large and complex preexisting populations. Through readings, lectures, and discussions, we will consider how different groups approached and experienced

the drastic changes that came with the colonization of Latin America. We will also ask how new groups and new relationships of power developed as a result of those changes.

3 cr.

HIST 271 Modern Latin American History

This course is a survey of the political, economic, social, and cultural history of Latin America in the nineteenth and twentieth centuries. This semester, we will explore a number of major subjects and themes, including the transition from colonies to republics, the nature of democratic participation, capitalist transformations in both agriculture and industry, changing ideas about citizenship, twentieth-century revolutions, dictatorship and democracy, poverty, and globalization. We will pay special attention to the ways in which different groups of people across the spectrum of Latin American societies responded to, participated in, and were affected by the development of modern nations.

3 cr.

HIST 290 Special Topics in History

Topics in history that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

HIST 302 Ancient Mesopotamia and Egypt, 4000-1000 BCE

Prerequisite: Junior standing. This course will draw on a combination of historical and archaeological sources (from epic poems and religious texts to burials and city ruins) to explore the earliest civilizations of the Near East.

3 cr.

HIST 310 Medieval Architecture and Society

Prerequisite: Junior standing. This course examines the monuments of medieval architecture in their historical context. We will study knightly castles and peasant cottages as well as the great Romanesque and Gothic abbeys and cathedrals, with the ultimate goal of learning not only about the buildings themselves but the society that created them. Note: this course is equivalent to ART 310 and satisfies either the aesthetic perspective or historical perspective requirement.

3 cr.

HIST 312 Renaissance Culture and Society

Prerequisite: Junior standing. This course will explore the important shift in European culture and society during the years 1300-1500, with special emphasis on the city of

Florence. A wide range of cultural sources (art, literature, personal diaries, etc.) will be studied to help understand this crucial period. Note: this course is equivalent to CUL 312 and satisfies either the cultural studies perspective or historical perspective requirement.

3 cr.

HIST 320 The Twentieth Century World

Prerequisite: Junior standing. This course explores the forces and conditions that shaped events of the fastest changing century in human history. Themes will include the World Wars, the rise and fall of the Soviet Union, colonization and decolonization, globalization, and technology.

3 cr.

HIST 332 The History of Russia

Prerequisite: Junior standing. This course consists of brief reviews of the earliest Indo-European settlements followed by study through the Kieran state to the emancipation of the serfs. The course covers the achievements and problems of late Czarist Russia, the Revolutions of 1917, the history of Soviet Russia, and the present.

3 cr.

HIST 333-334 Independent Study in History

See "Independent Study" on p. 30.

1-3 cr.

HIST 336 Early American Republic

Prerequisite: Junior standing or permission of the instructor. This course examines the creation and evolution of the American nation from its inception in 1776 to the outbreak of the Civil War in 1861. Forged out of the fires of war and revolution, the new United States faced the difficult task of securing unto itself a republican government while establishing a role in the international community. How it did so, and with what success, will be studied through such topics as patriotism and party politics, national identity and American folklore, and the "empire of liberty" and westward expansion. New England's changing role in the early republic will be given special emphasis.

3 cr.

HIST 341 German History since 1871

Prerequisite: Junior standing. Taking as its starting point the foundation of Germany in 1871, this course analyzes social, cultural, and economic issues at stake as the German nation experimented with a variety of political institutions under a constitutional monarchy, the Weimar Republic, National Socialism,

Cold War division, and finally reunification in 1990. Themes such as social class, gender, religion, generation, and ideology serve as tools of analysis in this investigation of modern Germany.

3 cr.

HIST 343 East German Society and Culture, 1949-1989

Prerequisite: Junior standing. This course is designed to introduce students to the history of East German society and culture from the foundation of the German Democratic Republic through the velvet revolution of 1989 and the demise of the regime. While the course will focus predominantly on the period 1949-1989, a brief exploration of postwar conditions and the Soviet Occupation, 1945-1949, will provide the students with sufficient historical background to better evaluate the main period under investigation.

3 cr.

HIST 345 World War II and the Holocaust in Europe

Prerequisite: Junior standing. This course investigates the Second World War in Europe between 1939 and 1945. Students will gain a sense of the historical background of the conflict, including the rise of Italian and German variants of fascism. Main themes include the concept of total war, Operation Barbarissa, allied campaigns, occupation and resistance, anti-Semitism, the Holocaust, the post-war settlement, and memory of the war and wartime atrocities.

3 cr.

HIST 346: The History of the British Isles, 1870-Present

Prerequisite: Junior standing. From the late Victorian period through to the present, this course examines the history of the British Isles including England, Wales, Scotland, and Ireland. Important consideration will be given to topics such as gender roles and experiences, class identity and class conflict, enfranchisement, imperialism, the world wars, decolonization, immigration, postwar youth culture, and globalization.

3 cr.

HIST 348 Women and Gender in Europe Since 1700

Prerequisite: Junior standing. This course examines the history of women in Europe from the 18th century to the immediate post-World War II period. It will focus on how conceptions of womanhood and woman's roles changed

over time, and on how these conceptions related to political and cultural life.

3 cr.

HIST 351 The American Revolution 1765-1789

Prerequisite: Junior standing. This course examines the transformation of Britain's American colonies into the United States between 1765 and 1789. Topics discussed include the changing character of imperial politics, the problems of waging revolutionary war, and the Revolution's impact on American society.

3 cr.

HIST 356 A City Upon a Hill: Boston, Massachusetts, 1630-1865

Prerequisite: Junior standing. The purpose of this course is to introduce students to the origins and evolution of Boston, Massachusetts, as both a city and a community. From its Puritan beginnings to its role in the American Revolution and later the antislavery movement, Boston has not only fascinated the general public, but also captured the imaginations of individual poets, writers, and artists. This course combines a variety of sources to explore the character of urban life and culture in the dynamic metropolis. Among other issues, we will address the importance of Boston's Puritan origins, examine its function as a commercial seaport within Massachusetts as well as both the British Empire and the American union, and assess its role in the American Revolution. Social interaction and cultural exchange among Bostonians will also constitute a major theme of the course. In this regard, we will examine life in Boston for various ethnic and racial communities, including French Catholics, African Americans, and Irish immigrants, as well as explore important sites of public interaction in the city such as Boston Common. Finally, we will also consider the means by which modern-day Boston has sought to preserve its historical landmarks amid continued urban development.

3 cr.

HIST 357 New York City

Prerequisite: Junior standing. New York City—as the world was reminded on September 11, 2001—is a global capital, a symbol of American dominance and vulnerability in the 21st century. The story of how the city came to occupy this position is central to the history of America and the modern world. This course is also a local history, for as countless observers have noted, New York is different. A historical

analysis of the city offers a glimpse into the best and worst of all worlds, and it remains to be seen whether New York will be the model of the future or a monument to the past and what might have been.

3 cr.

HIST 358 History of The United States Since 1945

Prerequisite: Junior standing. This course will begin with an examination of how America came to be so powerful in 1945, and will continue through the present, covering such themes and events as the Cold War, Vietnam, the Civil Rights Movement, the "Reagan revolution," and the paradox of affluence and poverty. The course will end with a consideration of America's challenges, opportunities, and responsibilities in the post-Cold War world.

3 cr.

HIST 365 The Rise of Islam and the Caliphates: 500-1500

Prerequisite: Junior standing. This course examines the origins of the Islamic religion. Topics will include pre-Islamic Arabia, the life of Muhammad, and the rise and fall of the Rashidun, Umayyad, and Abbasid Caliphates.

3 cr.

HIST 372 Rioters, Rebels and Revolutionaries in Latin America

Prerequisite: Junior standing. This course will examine several ways in which social movements in Latin America have been defined and analyzed by historians and social scientists. We will consider the circumstances under which people act collectively; how people respond to revolutionary transformations; and how economic, social, and cultural contexts limit or expand the scope of such activity. We will also give special attention to evaluating the kinds of sources that social scientists (historians, political scientists, anthropologists, and economists) employ in their studies of society, action, and change. We will focus on cases from Peru, Colombia, Mexico, Bolivia, and Brazil in the twentieth and twenty-first centuries. However, this will entail investigation into the historical roots of violent and non-violent movements and broader comparisons across Latin American and world societies.

3 cr.

HIST 373 Women In Latin America

Prerequisite: Junior standing. This course considers Latin American history through the lens of women's social and political

mobilization in the region from the late colonial period to the present. Gender, power, and the creation of identities in Latin America will be explored. Particular attention will be paid to the relationship between the ideologies of gender, class, and race. These scholarly concerns will take us into the household, workplace, and civil society. Chronologically, the course begins in the late colonial period (1770-1810) and extends through contemporary urban popular movements (1970-2000) in order to examine different moments of social and political activism involving, motivated, or impeded by women.

3 cr.

HIST 375 History of Modern East Asia

Prerequisite: Junior standing. This course examines the radical transformation of East Asia over the last 150 years, from humbled nations to world powers. For China, this course begins with the Opium War (1839-1842), after which China was forced to cede Hong Kong to the British; it concludes with the return of Hong Kong in 1997 and rising Western fears over the path China might take as the next superpower. For Japan, this course begins with its "opening" to Western trade in the 1850s, and ends with Japan seeking to find its way in the turbulent economic and cultural currents of the 1990s.

3 cr.

HIST 380 The Development of Modern Medicine

Prerequisite: Junior standing. This course traces the late 18th century to the present in three interrelated themes: the intellectual history of our current system of medicine, the social history of the medical profession, and changing patterns of health and disease.

3 cr.

HIST 390-394 Special Topics in History

Prerequisite: Junior standing. Topics of this course vary from year to year depending on faculty and student interests. This course may be repeated if topic differs.

3 cr.

HIST 480-481 Internship in History

See "Internships" on p. 31.

1-3 cr.

HIST 490 Junior and Senior Seminar in History

Prerequisite: Junior standing. Topics of this course vary from year depending on faculty

and students interests. This course may be repeated if topic differs.

3 cr.

HON Honors Program

HON 102 Cities and Societies

Prerequisite: Acceptance into the Honors Program. Cities have had a disproportionate influence on the development of human society, and it is in cities that one can best see much of the creation and interaction of cultures. It is crucial to keep in mind that no city or civilization has a single, monolithic culture, but is instead a composite of different cultures. This course takes a broad view of culture, including such familiar areas as art, literature, and philosophy, but also the cultures of the workplace, the family, and politics. This course fulfills the general university wide history requirement. Offered in fall only.

3 cr.

HON 133 Love, Blood, and Power: Literature of the English Renaissance

Prerequisite: Acceptance into the Honors Program and a "C" in ENGL 132 or equivalent. This course takes students beyond the plays of Shakespeare to explore the great achievements in prose and in dramatic, lyric, and narrative poetry of the English Renaissance. Readings also include non-literary works that provide cultural and historical contexts for the literature read. The course also satisfies the second semester writing requirement, substituting for ENGL 133 (English Composition II: Introduction to Literature). As such, it includes fiction, drama, and poetry with a strong emphasis on writing. Offered in spring only.

3 cr.

HON 220 Foundations and Central Ideas of the Natural Sciences

Prerequisite: Acceptance into the Honors Program. This course examines the nature of the universe from the standpoint of the natural sciences. It begins with an introduction to the approach used by the natural sciences to study the universe, the scientific method. Five major ideas in the natural sciences: the structure of the atom (physics), the periodic table (chemistry), the big bang theory of the origin of the universe (astronomy), plate tectonics (geology), the structure of DNA (biology), and evolution (biology) are then examined in the context of their historical development and the scientific method. Once these have been discussed, the natural sciences will

be contrasted with other fields of human endeavor, comparing the methods used by each with the scientific method. Finally, complex questions from the real world of applied fields will be analyzed and the method of benefit/risk analysis will be introduced. This course satisfies the lab science requirement.

3 cr.

HON 240 Russian Culture and Civilization

Prerequisite: Acceptance into the Honors Program. What is Russia? Winston Churchill answered this question with his now famous characterization of Russia as “a riddle wrapped in a mystery inside an enigma.” Others have been more specific in answering this question. The purpose of this course is to evaluate some of these answers after examining key themes in Russia’s literature, visual and performing arts, religion and philosophy, history, and politics. This course satisfies the cultures “CA” requirement.

3 cr.

HON 280 Mind of a Serial Killer

Prerequisite: Acceptance into the Honors Program. This team taught course examines the problem of crime from the twin perspectives of psychology and law enforcement. It satisfies the ILP requirement.

3 cr.

HON 290 Special Topics in Honors

Prerequisite: Acceptance into the Honors Program. The majority of Honors courses are not regular offerings, but special topics courses selected by the honors students themselves. These vary every semester and can be repeated if there is sufficient demand. Past HON 290 topics include “Bach to Broadway,” “Cryptography and Liberty,” “Mind of a Serial Killer,” “Unanswered Questions in Science,” and “Videogames and Comparative Media.” The course may be repeated for credit if the topic varies.

3 cr.

HON 333 Independent Study

Prerequisite: Acceptance into the Honors Program, arrangement with a member of the honors faculty, and approval of the Honors Research Committee. This faculty-directed research project is a supervised research project intended to allow honors students to explore an area of study in more depth than is possible in regularly offered courses. This course is intended mainly for junior honors students and cannot be taken concurrently with the senior honors project HON 495. Students can only count one faculty-

directed research project toward their honors graduation requirements. See Independent Study on p. 30.

3 cr.

HON 495 Senior Honors Project

Prerequisite: Acceptance into the Honors Program, arrangement with a member of the honors faculty, and approval of the Honors Research Committee. This course is intended for senior honors students who are preparing their senior honors project under the supervision of a member of the honors faculty in an appropriate field.

3 cr.

IE Industrial Engineering

(College of Engineering)

IE 212 Probability and Statistics

Prerequisite: MATH 134 or concurrent. This is a basic study of probability and statistical theory with emphasis on engineering applications. Students become knowledgeable of the collection, processing, analysis, and interpretation of numerical data. They learn the basic concepts of probability theory and statistical inference, and become aware of techniques of statistical design.

3 cr.

IE 308 Work Analysis and Design

Prerequisite: ENGR 212 or IE 212. This is a study of past approaches and current trends in designing effective and efficient work systems. Included are investigation and practice of the creative process, design and development procedures, implementation, and problem solving. A major design and problem-solving project is required.

3 cr.

IE 312 Engineering Economic Analysis

Prerequisite: ENGR 212 or IE 212. This is a study of the economic evaluation and comparison of engineering designs and project alternatives. Topics include the effects of cash-flow patterns, earning and inflationary powers of money, interest-rate characteristics, financing, and taxes on capital investments. Emphasis is on corrective actions.

3 cr.

IE 315 Quality Control and Engineering Statistics

Prerequisite: ENGR 212 or IE 212 or equivalent. This course studies statistical techniques used in analyzing experimental results and quality control. Topics include data analysis,

regression, design of experiments, statistical process control, control charts, and process capability analysis.

3 cr.

IE 318 Industrial Design Laboratory I

Prerequisite: ENGR 212 or IE 212 or concurrently. This is a laboratory course in industrial engineering. Students use their knowledge of the design process in performing experiments in methods engineering, computer and physical models, production systems, and quality engineering. One class hour, three-hour lab.

2 cr.

IE 326 Production Planning and Control

Prerequisite: ENGR 212 or IE 212. This is an introduction to quantitative production management. Topics include inventory control, production planning, master production scheduling, capacity planning, and techniques for shop floor control. The relationships between a company's manufacturing, marketing, and financial functions are included.

3 cr.

IE 328 Industrial Design Laboratory II

Prerequisite: Junior standing. A significant portion of study is dedicated to quality engineering and contemporary computer application toward service and manufacturing systems. Experiments build on previous topics with additional experiments on TQM, QFD, database design and application, facility layout, and quality control. One class hour, three-hour lab.

2 cr.

IE 334 Computer Simulation and Design

Prerequisite: ENGR 105, IE 326, ENGR 212 or IE 212 or equivalent. This is a study of discrete-event simulation and its use in the analysis and design of systems. The focus is on the analysis of manufacturing systems such as assembly lines, material handling systems, and production processes. Students write programs using traditional programming languages and simulation software.

3 cr.

IE 410 Engineering Project Management

Prerequisite: Junior or senior standing. Corequisite for IE students: IE 439. This course studies the use of conceptual, analytical, and systems approaches in managing engineering projects and activities. Major topics are development and writing project plans including project proposals, project scopes,

workbreakdown structures, network diagrams, project schedules, and presentations. Other topics include the people side of engineering and project management, communication, and documentation. An industrial project is required.

3 cr.

IE 419 Industrial Engineering Computer Applications

Prerequisite: ENGR 110, ENGR 212 or IE 212. Corequisite: IE 326. This is the study of contemporary computer tools toward industrial engineering. Students design, develop, and deploy computer applications or as applications which can be implemented via the Internet. These applications are developed for inventory and production control systems, statistical application, database/data mining applications, and for software system integration. Software tools and packages utilized include: XML, Javascript, Java, MATLAB, MSVBA, and MS Access.

3 cr.

IE 420 Contemporary Issues In Operations Research

Prerequisite: ENGR 212, or IE 212, MATH 235. This course is applicable for undergraduate students interested in exploring current topics in the field of Operations Research. Issues discussed may include emergency management/response, healthcare, risk management/modeling, financial engineering, and supply chain management. The course will be project-based and utilize recent literature which will be discussed, analyzed, and possibly extended.

3 cr.

IE 422 Industrial Safety and Hygiene

Prerequisite: ENGR 212 or IE 212. This is a study of issues related to human interaction(s) within a workplace. The focus is on industrial safety and hygiene in workplace design. Other topics include: the principles of industrial hazard avoidance and the roles of NIOSH and its relationship with OSHA.

3 cr.

IE 424 Computer Integrated Manufacturing

Prerequisite: ME 322. This is a study in the issues related to computer-integrated manufacturing and the integration of automated processes within a modern manufacturing environment. The focus is on engineering design, modeling and applications in automation, flow lines, robotics, numerical control, and computer usage in manufacturing.

3 cr.

IE 426 Production Design

Prerequisite: IE 326 or permission of the instructor. This course studies advanced topics in production planning and control, operational modeling, and networkscheduling. A design project is required.
3 cr.

IE 427 Facility and Material Handling Design

Prerequisite: Senior standing or permission of instructor. The course introduces the fundamental concepts, methods, and techniques of facility planning, design and the integration of plant layout, work flow, and material handling systems.
3 cr.

IE 428 Industrial Design Laboratory III

Prerequisite: IE 315, IE 326, and IE 328. This is a continuation of IE 328 with emphasis on integrating equipment and topics from previous courses. A significant portion of study is dedicated to facility and material handling design. Students will also design and propose their own experiments in addition to performing traditional experiments in facility layout and location, human factors, and CAD/CAM. One class hour, three-hour lab.
2 cr.

IE 429 Design and Analysis of Experiments

Prerequisite: ENGR 212 or IE 212 or equivalent. This course deals with the design of experiments, the application of analysis of variance, regression analysis, and related statistical methods. The goals are to learn how to plan, design, and conduct experiments efficiently and effectively and learn how to analyze the resulting data to obtain objective conclusions. Experimental design and analysis are investigated.
3 cr.

IE 439 Senior Design Projects I

Corequisite: Graduating senior status. Project management material covered in IE 410 is applied to business and industry problems. Each student develops a complete senior project plan in an industrial setting, obtains approval by a faculty and industrial project advisor, and makes an oral presentation of the proposal to the faculty. Guest lecturers relating to patents, technical writing, ethics, engineering registration, and other professional concerns are included.
3 cr.

IE 440 Senior Design Projects II

Prerequisite: IE 439. The student works on an independent engineering project under the

supervision of a project advisor. The design process is emphasized. Progress reports and a final written report are submitted to the student's project advisor. Oral presentations of reports are made before the faculty and students. A student who selects a project suggested by industry has the opportunity of working with an industrial sponsor in an actual engineering experience.
3 cr.

IE 480 Internship in Industrial Engineering

See "Internships" on p. 31.
3 cr.

IE 490 Special Topics in Industrial Engineering

This is a study of an advanced topic in engineering of special interest to industrial engineering majors, but not offered on a regular basis.
3 cr.

ILP Integrated Liberal and Professional**ILP 210 Cultures and Emerging Markets**

The forces of globalization under way today offer many new avenues of contact, linking together economies and cultures at an unprecedented pace. This course takes a look at emerging markets of the developing world, where exciting new growth opportunities are accompanied by serious challenges stemming from poverty, inadequate infrastructure, poor governance, and cultural barriers. We will incorporate insights from the social sciences as we seek to better understand and interpret the wide range of experiences with development and chart what new directions these societies are heading.
3 cr.

ILP 225 Gender and Work

Students are introduced to sociological and managerial perspectives on gender and work, including a consideration of standards for social research and its usefulness in a managerial setting. The focus of the course is on an analysis of the quality of social research and on its relevance and application in managerial settings.
3 cr.

ILP 230/SUS 230 Business and the Global Environment

Prerequisite: Sophomore standing. Sustainability majors must take SUS 230. This course focuses on political, cultural, economic,

and social elements related to globalization of the business environment and covers a broad spectrum of issues. Learning outcomes are focused on the recognition and understanding of concepts and practices with respect to: the economics of international monetary and banking systems; the nature of regional economic integration; theories of international trade; the organization of global firms; cross-cultural marketing issues; international legal frameworks and trade organizations; and ethics and social responsibility.

3 cr.

ILP 235 Global Sustainability Management

Prerequisite: Sophomore standing and permission of instructor. This travel/study course explores the impact of organizational activities on sustainability through trips of one-to-three week's duration during school breaks that are chaperoned and supervised by a faculty member. These trips take students outside the geographic borders of the U.S. and provide learning experiences beyond the classroom environment. The course involves research and discussion of environmental issues relevant to the country being visited, and programs and activities that enhance the ability of students to comprehend, analyze, and grasp different aspects of sustainability that are the responsibility of organizations in the global environment. The major goal of the course is to allow undergraduate students opportunities to understand the relationship between the science of environmental sustainability and the efforts of organizations to support environmental responsibility. The course may be repeated for credit if the location/topic varies.

3 cr.

ILP 236/SUS 236 Global Warming

Sustainability majors must take SUS 236. This ILP course will first address the physical laws and underpinnings of the observed global warming trend. Changes in the atmospheric abundance of greenhouse gases and aerosols and in land surface properties, that alter the energy balance of the climatic system and the preexisting greenhouse effect, will be investigated. Model projections for future climates will be discussed. The investigation of the physical science basis will be followed by an assessment of the observed and projected global and local impacts of the climatic changes and the adaptations and vulnerabilities of natural, social, and economic systems impacted by these changes. Finally

the proposed political solutions addressing these threads, (local and global) especially as expressed and outlined in the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC) a panel under the joint auspices of the United Nations and the World Meteorological Organization will be discussed.

3 cr.

ILP 237 Forensic Physics

Prerequisite: PHYS 103 or PHYS 123 or PHYS 133. This ILP course will focus on the application of basic physics concepts to Forensic Science with an emphasis on the quantitative analysis of real and contrived cases. It will expose the students to actual methods and techniques used by investigators in the field of Forensic Physics. The science of physics is especially important when dealing with ballistic evidence where the trajectory of a bullet is in question (kinematics). Physics is needed to aid in accident reconstruction, resolving the many different forces at work in order to explain how an event may have happened (Newton's laws, collisions, energy). Other topics are, e.g., the physics of explosions and arson (thermodynamics), analysis of bloodstain patterns (kinematics), and the use of physical and geometric optics principles to develop latent fingerprints.

3 cr.

ILP 251 The Economics of Social Policy: Deciding How Your Money Is Spent

Prerequisite: Sophomore standing. This course examines how economic theory assists in examining and explaining the social policy choices we all make as citizens. This integrated liberal arts and professional course will cover policy issues such as welfare reform, healthcare, Social Security, and immigration. Student debates will be required.

3 cr.

ILP 252 Based on a True Story: Films That Inspire

Prerequisite: Sophomore standing. This course combines social work professional knowledge, values, and skills that relate to community organization and the promotion of social justice with psychological and sociological explanations of why some people choose to act in the face of oppression, while others become bystanders, victims, or collaborate with the aggressor. The course will be taught using films based on true stories of people who took action to combat oppression.

3 cr.

ILP 314 Textiles Through Time

Prerequisite: Junior standing. This course will examine the history, sociology, aesthetics, economics, and inventions related to textiles. We will move through time looking at the change in choice of textile production from natural fibers to manufactured fibers exploring what drove these changes and the applications of various textiles as they became available.

3 cr.

ILP 317 Management Issues for Professionals

Prerequisite: MATH 111 or MATH 123 or MATH 133. Managerial economics is part of the education of managers, engineers, and other professionals who are involved in decision-making. It provides a framework for assembling information and analyzing alternative decisions. The principle problems studied are those of optimization, forecasting, risk avoidance, and business decision making. Its principle tools are drawn from economic theory and statistics. Calculus and numerical calculations are used to develop and analyze the data that theory has demonstrated to be relevant.

3 cr.

ILP 320 The Moving Image

Prerequisite: Sophomore standing. This course provides an introduction to the skills necessary when writing for the media in various forms—non-fiction, speech-writing, broadcast and print journalism, and film documentaries. Students will do research and preparation to enable them to create their own media products, considering how their ideas can be translated creatively into effective sound and moving images, into something functional in the everyday world. They will also learn to transform the purely functional into a product with satisfying aesthetic, educational, and ethical dimensions.

3 cr.

ILP 350 AIDS: A Global Pandemic

Prerequisite: Junior/senior standing. This course explores the origins and history of the HIV/AIDS pandemic, the socio-economic factors related to the epidemiology of the disease and the impact of the disease. Much of the course's content will focus on sub-Saharan Africa, which is the epicenter of the pandemic. The globalization of the disease and the increasing interdependence of countries and regions requires discussion and readings that take a national and international approach.

3 cr.

ILP 353 Leadership and Group Skills

Prerequisite: Junior/senior standing. This course provides the opportunity to examine leadership issues from historical, sociological, and psychological perspectives, and to practice leadership and group skills within the classroom. Readings from historical biographies, sociology, and psychology will be used to gain insights into a range of leadership qualities and abilities. Students will also take a number of assessment instruments that will help them determine their own leadership profiles and will guide them in refining their skills during the semester. Students will be assigned to a specific small group that will perform an array of activities and serve as the context for personal skill building. Students will learn how to analyze a variety of leadership functions and develop a reflective practice that will enable them to continue to perfect their leadership skills in the future.

3 cr.

ILP 365 Emergence of Modern Marketing

Prerequisite: Junior standing. The purpose of this course is to introduce students to the emergence of modern marketing through "characteristics of persistent, systematic, and increasingly widespread marketing methods adopted by businesses from the nineteenth century onwards." Issues investigated include selling, advertising, branding, pricing, promotion, market research, and product planning and development. A case-based approach to the investigation of the history and context behind these pivotal moments in marketing and marketing practice is the basis for instruction in this course.

3 cr.

ILP 367 Baseball and American Culture: The Evolution of a Pastime

Prerequisite: Sophomore standing. This course seeks to explore the various relationships between baseball and American culture, focusing on the role of business and baseball; the way in which baseball has been used to define boundaries for American identity, particularly along the lines of race, gender, and ethnicity; the uses to which baseball has been put within different art forms, including fictional literature, poetry, music, theater, and film; and how baseball has played a significant role in the creation and maintenance of print and broadcast media institutions.

3 cr.

ILP 369 Problem Solving Through Design

Prerequisite: Junior or senior standing. This course is intended for all majors. The course will focus on systematic approaches to problem-solving through design. Design is the process to achieve desired transformation from the current state to an improved state. Everyone does this, whether it is a simple activity or finding the solution to a complex problem. Students will gain understanding of defining criteria and restrictions that influence designs and how designs influence culture and society.

3 cr.

ILP 370 Human Genome Project

Prerequisite: Junior or senior standing. This 300-level course is targeted at both non-science and science majors intrigued by the potential this new research has for affecting their lives, and the lives of their friends and family, particularly regarding health issues. The current learning objectives for this course include, but are not limited to: (1) a basic understanding of how genetics works; (2) a basic understanding of the history of the HGP; (3) an understanding of some of the potential benefits of new genetic and reproductive technologies; (4) an understanding of the inherent conflicts associated with new genetic technologies and the ethical issues associated with these conflicts, for example, concerns about access—who is denied benefits, who gains the benefits; and (5) an understanding of the civil responsibility in guiding both the research and its ultimate applications. Students will be introduced to the history and motivation for the project, the fundamentals of genomics, and applications of the HGP. The second part focuses on the ethical, legal, and social implications (ELSI) of the research.

3 cr.

ILP 375 Exploring Public Opinion

Prerequisite: Junior/senior standing. In this course, students will learn the basics of public opinion polling within the broader context of rhetoric and the “public sphere.” Readings in rhetoric and culture criticism will frame the work that students do in constructing surveys, selecting samples, and conducting public opinion polls for clients on and/or off-campus. Practical and theoretical perspectives will be employed.

3 cr.

ILP 380 Investigative Reporting

Prerequisite: Junior or senior standing. This course allows all students to gain knowledge

of criminal investigation, criminal procedure, and criminal law while conducting research and writing of investigative reports. An investigative reporter needs to have an open mind while spending considerable time researching and preparing a report in order to arrive at the truth. Reporters need a clear and concise knowledge of the criminal justice system before beginning their research. Students will be responsible for weekly readings in criminal investigation, trials, and appellate hearings on death row inmates. Each student will write weekly investigative reports in a specific area of the criminal justice system. Students will pair up to write and present in class a final investigative report on death row inmates to determine whether or not such inmates are guilty or raise concern of a wrongful conviction. This course serves a dual purpose in preparing students in the criminal and investigative way of reporting as well as the opportunity to view and report the facts of a case in an open-minded procedure by establishing the truth of the matter. This course emphasizes the integration of behavior science (criminal justice and political science) and communicating (communications) to the public in written form of the issue at hand.

3 cr.

ILP 388 Sexuality and Sexual Assault in our Society

The first part of the course explores cultural, political and socio-economic factors with regard to communication and sexual relationships, sexual behaviors, gender roles, sexual orientation, sexual disorders, and sexually transmitted diseases. The remainder of the course discusses sexual assault in our society from cultural, legal, psychological, and political perspectives with an emphasis on awareness, prevention, and treatment. The course engages guest lecturers in the field to enhance the professional perspectives. The course will use a combination of primary research literature, textbook material, and popular literature to illustrate the variety of perspectives.

3 cr.

ILP 389 Issues in Adolescence

Students will be introduced to theories of adolescent development to prepare them for a practical experience working in an alternative high school environment. This experience will include the opportunity to observe, teach, advise, assess, counsel, and interview at-risk youth.

3 cr.

ILSP Integrated Liberal Studies Program

(College of Arts and Sciences)

ILSP 480 Internship

Internship experiences typically occur within the context of major or minor academic disciplines. From time to time, however, there are opportunities that fall outside the confines of the major, but yet provides career experience.

1-3 cr.

ILSP 481 Internship

Internship experiences typically occur within the context of major or minor academic disciplines. From time to time, however, there are opportunities that fall outside the confines of the major, but yet provides career experience.

1-3 cr.

INST International Studies

(College of Arts and Sciences)

INST 101 Introduction to Contemporary Global Issues

The course examines numerous social, cultural, economic, and political issue areas from the vantage points of global community and global citizenship. Areas such as the regulation of business, the spread of technology, environmental pollution, health, poverty, crime, human rights, immigration, education, and democracy as well as war and peace, are analyzed within the context of globalization. This course is equivalent to POSC 101.

1-3 cr.

INST 190 Special Topics in International Studies

Topics in international studies that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

INST 290 Special Topics in International Studies

Topics in international studies that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

INST 480-481 Internship in International Studies

See "Internships" on p. 31.

INST 490 Seminar in International Studies

Prerequisite: Senior standing and 15 credit hours of international studies or permission of the instructor. This is an exploration of selected topics in international studies with an emphasis on developing research analytical skills. These skills are incorporated into a research project on a topic selected by the student. This course may be repeated if the topic differs. All senior international studies majors are required to enroll in this course.

3 cr.

IT Information Technology

(College of Arts and Sciences)

IT/CS 101 Introduction to Computing

This course is designed to introduce the student to the areas of computer science and information technology in order to help them make an informed choice about which career path they would like to follow. Topics include the history of computing, how computers work, the elements of computer science, the elements of information technology, the basics of computer programming, and the place of both areas in today's world. Programming basics will be explored using the Python programming language. Short projects, a research paper, presentations and exams will be used to assess the student's learning.

4 cr. Three hours of lecture and three hours of lab per week.

IT 102 Introduction to Programming

Covers problem solving with programming in greater detail. Students learn to apply fundamental imperative, procedural constructs to solve common programming problems, as well as the beginnings of object oriented programming (e.g., defining classes, instantiating objects, using objects, and using application programmer's interfaces). Students learn to design and develop small programs using a procedural, imperative programming language and appropriate analysis, design, and testing techniques. This course is equivalent to CS 102. One cannot receive credit for both IT 102 and BIS 300. Offered in the spring semester.

4 cr., 3 hours of lecture and 3 hours of lab per week.

IT 230 Introduction to Operating Systems and Script Development

Prerequisite: IT 101 or CS 101 and IT 102 or CS 102 or permission. This course provides students with the foundations for working with current operating systems. Students learn to make effective use of operating systems' powerful command-line interface. They also learn how to create scripts to automate redundant tasks and scripts to act as glue between otherwise independent applications. Offered in the fall semester.

3 cr.

IT 240 Foundations of Web Systems

Prerequisite: At least sophomore standing and at least one CS or IT course not including CS 131. This course provides student with the foundation for website development and maintenance. Students learn about web browsers, how URLs are resolved, and web pages are returned. They learn hypertext, self-descriptive text, web page design, web navigational systems, and digital media. Students become proficient with common tools for authoring and publishing web pages. This course is equivalent to BIS 210. Offered in the spring semester.

3 cr. Laboratory fee \$50.

IT 250/BIS 413 Data Communications and Networks

Prerequisite: IT 101 or CS 101 or BIS 300. This is a study of the concepts and terminology of data communications, network design, and distributed information systems. Major topics include communication concepts, network architectures, data communications software and hardware, and the impact of communications technology on information systems. This course is equivalent to CS 360.

3 cr. Laboratory fee \$50.

IT 300/BIS 321 Database Management Systems

Prerequisite: IT 101 or CS 101 or BIS 300 and junior standing. This course is a study of the concepts, theory, design techniques, and information retrieval methods, emphasizing the relational database model and structured query language (SQL). It incorporates database design and application development CASE (computer aided software engineering) tools, with emphasis on the entity-relational (E-R) model and unified modeling language (UML). Topics include data modeling and organization, database architecture, SQL, and database connectivity technologies. Design

and implementation projects are required. This course is equivalent to CS 364.

3 cr. Laboratory fee \$50.

IT 310 System Operation and Administration

Prerequisite: IT 230 and at least junior standing. This course focuses on the organization and architecture of computer systems and major components such as process management, I/O management, and resource management. The course also enables the students to learn how to perform standard system administrative tasks, such as installing system and applications software, installing new hardware, managing user accounts, backing up and restoring file systems, boot-up and shutdown, and monitoring system performance. Offered in alternate fall semesters.

3 cr.

IT 320 Foundations of Human Computer Interaction

Prerequisite: IT 102 and junior standing in CS, IT, or BIS program or permission of instructor. Students learn the basic concepts of human computer interaction to evaluate, design, and improve the usability of a system. These basic concepts include human factors, performance analysis, cognitive processing, usability studies, environment, and user training. Students will gain practical experience by applying these concepts to web systems. Offered in fall semester.

3 cr.

IT 330 Network Security Concepts

Prerequisite: IT 230 and IT 250, or permission of instructor. Over the past decade, organizations have increased their dependence on networks for core business processes. Due to the fact that many organizations are allowing their employees to have remote access to the company's network via virtual private networks (VPNs), network security has become very critical. This course teaches students how to secure a network (small or large) by focusing on understanding of the policies, products, and expertise that helps organizations to deal with the network security topic. Offered in alternate fall semesters.

3 cr.

IT 340 Wireless Networking Concepts

Prerequisite: IT 230 and IT 250, or permission of instructor. This course introduces the students to wireless networks by exploring the latest wireless technologies in the networking industry. The students learn about wireless LANs, cellular telephone, infrared lasers, microwave, spread spectrum, and satellite.

The course also looks at the current industry standards such as IEEE 802.11 (Physical Layer) and IEEE 802.11 (Medium Access Control and Network Layer). Offered in alternate fall semesters.

3 cr.

IT 350 Web Systems Development

Prerequisite: IT 102 or CS 102, IT 240 and at least concurrent enrollment in IT 300/ BIS 321. Web applications are the heart and soul of e-commerce. Students will learn to create interactive web applications that are backed by databases using current server-side technologies. Students also learn basic web server administration, and how to secure websites and web communications.

3 cr.

IT 360 Network Management and Operations

Prerequisite: IT 230 and IT 250. In this course, students learn about various tasks that are involved in day-to-day network management and operations. Students will learn how to perform tasks such as network configuration, remote administration access, IP configuration (static and dynamic), setting up name servers, namespace configuration and management, and how to troubleshoot network problems and fix them. Offered in alternate fall semesters.

3 cr.

IT 410 Advanced Topics in System Administration

Prerequisite: IT 310. This course is a study of current advanced topics in system administration. Topics may include the latest security issues, advances in storage technologies, advances in network file systems, latest technology used in setting up shared file systems, high performance computer system maintenance, and latest strategies used for backup and restoration. Offered in alternate spring semesters.

3 cr.

IT 430 Advanced Topics in Network Security

Prerequisite: IT 330. This course is a study of current advanced topics in network security. The course will focus on advanced topics in access control, web security, remote access and virtual private networks, wireless LAN/ WAN security, and mail and DNS security. Offered in alternate spring semesters.

3 cr.

IT 440 Advanced Topics in Wireless Networking

Prerequisite: IT 340. This course is a study of current advanced topics in wireless networks. Topics such as wi-fi networks, hybrid wireless architectures, ultra wideband networks, and wireless sensor networks will be studied. Offered in alternate spring semesters.

3 cr.

IT 450 Advanced Topics in Web Design and Development

Prerequisite: IT 350. This course is a study of current advanced topics in web design and development. Topics such as load balancing, quality of service, caching, information architecture, website administration tools, usability, and security in e-commerce will be studied. Offered in alternate spring semesters.

3 cr.

IT 460 Advanced Topics in Network Administration

Prerequisite: IT 360. This course is a study of current advanced topics in network administration. Topics such as latest software/ hardware network management tools, switches and routers, firewall configurations, and latest tools to manage and troubleshoot enterprise and service provider networks will be studied. Offered in alternate spring semesters.

3 cr.

IT 480 Internship in Information Technology

See "Internships" on p. 31.

3 cr.

JRNL Journalism

(College of Arts and Sciences)

JRNL 101 Introduction to Journalism I (Formerly JRNL 210)

Prerequisite: ENGL 132 or equivalent with a grade of "C" or better. This course offers an introduction to the nature, problems, and ethics of newspaper work as well as the organization and techniques of the modern newsroom. The course places special emphasis on writing the news story in its various forms. Extensive written assignments are required. Offered every semester.

3 cr.

JRNL 120/121 Producing The Westerner

Prerequisite: Work on *The Westerner* and permission of the instructor. This course gives students hands-on experience with producing a college newspaper. Students may be responsible for writing, editing, photographing,

graphic design, layout, advertising, and aspects of business management.

1 cr.

JRNL 205 Journalism Ethics

Prerequisite: JRNL 101. This course examines the ethical responsibilities of journalists in the contemporary sociopolitical climate and in contemporary media organizations. Students learn about and weigh competing interests and ethical considerations in areas such as privacy rights, neutrality or objectivity, confidentiality, plagiarism, undercover reporting and/or the use of deception in pursuing stories, and intellectual property rights. Students will also weigh their competing responsibilities to the public and to the corporate or nonprofit organizations for which they work. Finally, students will consider issues pertinent to First Amendment responsibilities and obligations.

3 cr.

JRNL 220 Producing a College Newspaper

Prerequisite: Permission of the instructor. In this course, students learn all aspects of newspaper production, including writing, editing, layout, research, checking sources, and meeting deadlines for the university's newspaper, *The Westerner*.

3 cr.

JRNL 250 Intermediate Journalism

Prerequisite: COMM 100 and JRNL 101. This course develops students' nonfiction storytelling, research, and writing skills. Students will be expected to produce publication-worthy stories as a result of this course.

3 cr.

JRNL 360/COMM 360 Sportswriting

Prerequisite: JRNL 101 and two courses in English writing with grades of "C" or better. This course introduces students to the craft of sportswriting. Beginning with a discussion of how to approach writing in general, the course focuses principally on analyzing models of successful sportswriting and developing skills in producing sportswriting. Students will be expected to read copiously and critically and to write (and revise) several short assignments as well as one research-based project. This course is cross-listed as COMM 360.

3 cr.

JRNL 370/COMM 371 Advanced Journalism

Prerequisite: COMM 241, JRNL 250, and/or permission of instructor. This course provides students with professional radio reporting opportunities. It focuses on radio

news reporting with instruction and real-life applications in developing, researching, writing, and producing broadcast news stories to be aired on National Public Radio Station WAMC. Students receive on-the-air talent techniques and one-on-one coaching for professional voice-over productions. Story ideas are assigned by the instructor, the WAMC news director, and news producers; students must also generate his/her own story proposals. This course is cross-listed as COMM 371.

3 cr.

LA Liberal Arts

(College of Arts and Sciences)

LA 100 First Year Seminar

This course represents a segment of the general education requirements, specifically pertaining to personal development and relevant academic skills. First Year Seminar is a course designed to ease the transition to the first year of college and to explore the value of college and develop a sense of personal identity. While course content can vary from section to section, there is a commonly shared core of objectives that characterizes the seminar. Organized around academic interests, there is structured opportunity to become acquainted with the intricacies of particular academic disciplines, or, if undecided, to engage career exploration activities. As regards general education components, the seminar serves as an introduction to critical thinking, a platform for exploring information literacy, and practical application of oral presentation strategies. One of the unique components of the course is linking the role of instructor to that of academic advisor for the students enrolled in any particular section. The course is also distinguished by the use of student assistants known as First Year Seminar Assistants whose role is to support students in the academic transition challenges of the first year.

2 cr.

LA 101 First Year Field Experience

Linked with First Year Seminar, this learning beyond the classroom experience exposes first year social work students to the realities and complexities of the actual workplace. Working with such populations as the elderly, developmentally challenged, children in foster care, and school age children, students explore the development of professional relationships

and the challenges often faced by social workers. Enrollment in First Year Seminar is a corequisite. This course meets one unit of the General Education requirement of Learning Beyond the Classroom.

1 cr.

LA 150 Laboratory in Writing Fundamentals I

This is a one-credit laboratory course designed to supplement the work in certain sections of ENGL 132 English Composition I: College Reading and Writing with a review of English fundamentals. Topics include sentence structure, mechanics, and usage.

1 cr.

LA 151 Laboratory in Writing Fundamentals II

This is a one-credit laboratory course that introduces basic rhetorical principles and applies the principles taught in LA 150 to assignments in certain sections of ENGL 133 English Composition II: Introduction to Literature.

1 cr.

LA 175 Academic Reading Strategies I

This is a one-credit laboratory course that provides students with an understanding of the skills needed for proficiency in college reading. Some theory is presented, but the emphasis is on the application of the skills to college reading.

1 cr.

LA 176 Academic Reading Strategies II

This is a one-credit laboratory course that applies the strategies taught in LA 175 to textbooks from courses across the curriculum.

1 cr.

LA 190 Special Topics in Liberal Arts

Liberal Arts topics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

LA 250 Language Support Lab I

This is a one-credit laboratory course which gears instruction to the individual needs of students who speak English as a foreign or second language or who come from a bilingual background. The course is usually taken concurrently with a designated section of ENGL 132. May be taken for two credit hours by arrangement.

1-2 cr.

LA 251 Language Support Lab II

This is a one-credit laboratory course that continues the work of LA 250. This course is usually taken concurrently with a designated section of ENGL 133. May be taken for two credit hours by arrangement.

1-2 cr.

LA 290 Special Topics in Liberal Arts

Liberal Arts topics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

LA 390 Special Topics in Liberal Arts

Liberal Arts topics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

LA 391 Student Literacy Volunteers

Prerequisite: Sophomore standing or higher. This is an introduction to the problems of illiteracy and to the techniques of teaching literacy. Students receive elementary training in techniques and practice those techniques under supervision in the Greater Springfield community.

1-3 cr.

LA 490 Special Topics in Liberal Arts

Liberal Arts topics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

LA 491 Student Literacy Volunteers

Prerequisite: Sophomore standing or higher, LA 391. This is a continuation of the work in LA 391.

1-3 cr.

LBC Learning Beyond the Classroom

LBC 201 Course Based

The experiential activity is embedded into the course curriculum.

No credit

LBC 202 Cocurricular Activity

Membership or leadership of a cocurricular organization.

No credit

LBC 203 Leadership Development

Experiences in this category carry significant leadership and time commitments. Roles where the students have been selected and

trained to fulfill the responsibilities of their positions.

No credit

LBC 204 Athletics

Participation in organized and recognized athletic programs.

No credit

LBC 205 Service Learning

May or may not be associated with a course or academic credit. Service meets a designated community need.

No credit

LBC 206 Experiential Learning

May or may not be associated with a course or academic credit. Experience not service oriented.

No credit

LBC 207 Internship

Participation in a university recognized internship program. See "Internships" on p. 31.

No credit

LBC 208 Study Abroad

Participation in a structured, university recognized study abroad program.

No credit

LBC 209 Research

Participation in an independent or semi-independent research project.

No credit

LBC 401 Course Based

Prerequisite: LBC 2xx. The experiential activity is embedded into the course curriculum.

No credit

LBC 402 Cocurricular Activity

Prerequisite: LBC 2xx. Membership or leadership of a cocurricular organization.

No credit

LBC 403 Leadership Development

Prerequisite: LBC 2xx. Experiences in this category carry significant leadership and time commitments. Roles where the students have been selected and trained to fulfill the responsibilities of their positions.

No credit

LBC 404 Athletics

Prerequisite: LBC 2xx. Participation in organized and recognized athletic programs.

No credit

LBC 405 Service Learning

Prerequisite: LBC 2xx. May or may not be associated with a course or academic credit. Service meets a designated community need.

No credit

LBC 406 Experiential Learning

Prerequisite: LBC 2xx. May or may not be associated with a course or academic credit. Experience not service oriented.

No credit

LBC 407 Internship

Prerequisite: LBC 2xx. Participation in a university recognized internship program. See "Internships" on p. 31.

No credit

LBC 408 Study Abroad

Prerequisite: LBC 2xx. Participation in a structured, university recognized study abroad program.

No credit

LBC 409 Research

Prerequisite: LBC 2xx. Participation in an independent or semi-independent research project.

No credit

LSOC Law and Society

(College of Arts and Sciences)

LSOC 101 Introduction to Law and Society

This is an introductory survey course which presents the major legal systems of the modern world, viewing each as a cultural development, a product of history, religion, philosophy, economics, and geography resulting in the laws and jurisprudence now operative in the today's world. The survey will emphasize the development of legal concepts from Athens to the United Nations and touch upon the religious and secular legal codes in Eastern and Western societies.

3 cr.

LSOC 201 The History and Theory of the Common Law

Prerequisites: LSOC 101 or permission of the instructor. This course is a developmental presentation of English law and procedure from the Roman period until today. Of particular concern will be the growth of the concept of law itself from the age of Bracton to Coke to Blackstone to Holmes and how it was affected by the religious, political, social, and economic conflicts of each period and

the challenges facing the Common Law in the world today.

3 cr.

LSOC 202 The Literature of the Law

Prerequisites: LSOC major and junior status or permission of the instructor. This course is founded on the notion that, just as the "Gettysburg Address" is both a political document and great literature, so, too, does much of past legal writing rise to such a level of splendid prose as we all may wish to emulate. In addition to plays and novels whose plots involve a deep legal milieu, this course will also study the clear prose of such writers as Coke, Blackstone, Marshall, and Holmes.

3 cr.

LSOC 206 Legal Justice and Social Justice

Prerequisite: LSOC 101 or CJ 101 or SO 101. This course is a multicultural, interdisciplinary examination of justice concepts, legal, and social responses using legal case studies and commentaries. It will examine issues nationally and internationally from which evolve the concept of human rights and legal rights.

3 cr.

LSOC 304 The Law of Greece and Rome

Prerequisites: LSOC major and junior status or permission of the instructor. This course will present the law of Classical Athens as seen in the works of its poets, philosophers, and rhetoricians from the time of Solon to the age of Alexander. This will be followed by a review of the development of Roman jurisprudence from Cicero's republic through the age of Constantine, the code of Theodosius to the corpus juris of Justinian. The course will touch on the subsequent influence of Roman law on the Law of Europe and the Canon Law.

3 cr.

MAN Management

(College of Business)

MAN 101 Management and Organizational Behavior

The course introduces the managerial function in business and examines elements of organizational behavior that influence effective management practice and leadership. Key learning outcomes include an understanding and recognition of: the role that individual differences and perception play in influencing behavior in organizations; theories and concepts of decision-making and problem

solving; theories and concepts of motivation; theories and concepts of leadership; and theories and concepts from the behavioral sciences in developing strategies for effective teamwork and other organizational processes.

3 cr.

MAN 201 Interpersonal Skills for Managing

Prerequisite: MAN 101. Competency in interpersonal skills is essential for effectiveness at every level of managing in organizations. This course examines theory and research in the social and behavioral sciences to identify effective strategies and best practices in the interpersonal dimensions of managing. Key learning outcomes include the development of interpersonal skills relating to emotional intelligence, teamwork, followership, and leadership, and managing conflict and cultural diversity. Course includes career readiness element.

3 cr.

MAN 204 Organizational Behavior

Prerequisite: MAN 101 taken prior to Fall 2009. The course examines individual, interpersonal, and group behavior in organizations. Coverage includes OB concepts as they influence effective management practice and leadership. Course content is designed to facilitate the attainment of key learning outcomes focused on the understanding and recognition of: the role that personality and perception play in influencing behavior in organizations; concepts associated with effective work design; theories and concepts of decision-making and problem solving; theories and concepts of motivation; theories and concepts of leadership; and theories and concepts from the behavioral sciences in developing strategies for effective teamwork and other organizational processes. Course includes career readiness element.

3 cr.

MAN 240 Business and Society (Formerly BUS 240)

Prerequisite: Sophomore standing. This course explores the connections between businesses and the wider social environment of which they are a part. Key learning outcomes focus on: recognition of ethical issues with respect to business activities, the basis for government regulation of business and business' involvement in the public policy process, identification and analysis of stakeholder issues, and the nature of corporate social responsibility. This course can be taken to

fulfill the PH 211 requirement. Cannot take both PH 211 and MAN 240 for credit.

3 cr.

MAN 251 Entrepreneurship and Innovation (Formerly BUS 250)

Prerequisite: Sophomore standing. This is a course on entrepreneurship using technology and innovation. The perspective of various levels of general management (corporate, business, project) in studying the process of creating change through entrepreneurship and technological innovation will be taken on. The key activities at each of the levels of management, how they interlock, and how such complex systems of activities can be managed effectively will be examined.

3 cr.

MAN 305 Managing for Sustainability

Prerequisite: MAN 101 and sophomore standing. The course focuses on the principles and practices of managing organizations sustainably. The course integrates concepts of sustainability into the management of organizations with respect to social, financial and environmental criteria. Key learning objectives include recognition and application of the concept of sustainable development in business; the ways in which principles of sustainability can provide businesses with competitive advantages; various bases for evaluating the economic, environmental, and social impact of organizational activities; and how managers contribute to the achievement of sustainable business development.

3 cr.

MAN 311 International Management

Prerequisite: MAN 101. This course focuses on issues of nations and cultures with respect to central themes in management practice including motivation, communication, negotiation, leadership, ethics and social responsibility, organizational structure, human resources, and diversity. Learning outcomes are focused on the recognition and application of relevant concepts and practices with respect to: an awareness of the influence of culture on behavior, particularly in terms of leadership, motivation, decision-making, and conflict; familiarity with the types of situations and issues that managers may confront when working internationally and/or returning home; and an appreciation for the complexity of ethics and social responsibility in the global environment.

3 cr.

MAN 315 Organizational Theory

Prerequisite: MAN 101 or PSY 302. The course examines organizations at a macro-level in order to develop skills for analyzing the complicated situations in contemporary organizations. Key learning outcomes focus on the understanding and application of: vocabulary of organization theory; recognizing existing organizational theories, models, and concepts; historical approaches to organizational theorizing; strengths and weaknesses of different organizational designs; the role of conflicting perspectives, ambiguity, paradox, and contradictions as they relate to organizational life; inherent tensions of specialization, and integration that characterize organizational designs and processes.

3 cr.

MAN 323 Human Resource Management

Prerequisite: MAN 101 and junior standing. The course provides an overview of human resource management practices in organizations. Focus on key learning outcomes includes the understanding, application, and problem-solving associated with: the strategic role of human resource management; legal issues of HRM including selection and compensation; principles of effective employee selection; various approaches to employee training; setting and administration of compensation; pay for performance systems; approaches to performance appraisal; and value of job description and building motivation into the job design. Course includes career readiness element.

3 cr.

MAN 331 A Humanistic Approach to Leadership and Management

Prerequisite: MAN 101 and junior standing. The course provides a study of fiction, biography, drama, and film as primary sources to arrive at a better understanding of how effective leadership and management occur. Key learning outcomes focus on the understanding, use, and problem-solving applications associated with: the basic differences among successful leadership styles and situational factors; personal leadership styles; leadership skills such as initiative, planning, and risk taking; application of humanistic leadership principles to work and family situations; effective leadership decisions; and non-traditional learning sources in everyday leadership opportunities.

3 cr.

MAN 333-334 Independent Study in Management

See "Independent Study" on p. 30.
3 cr.

MAN 341 Leadership and Change

Prerequisite: MAN 101 and junior standing. This course focuses on the leadership challenges in organizations pursuing change. Key learning outcomes in the course include the understanding, use, and problem-solving applications associated with a range of current perspectives on the key elements of effective leadership, the fundamental elements and best practices in the area of organizational change, and the concepts of leadership and change.
3 cr.

MAN 370 Project Management

Prerequisite: BIS 202 and MAN 101. This course introduces the project management discipline and focuses on critical success factors in achieving project success. The roles managers and technical professionals fulfill in the project development process will be explored with emphasis on the skill set demanded for successful project participation, contribution, and completion. Current trends in project management will be analyzed with emphasis on the impact of globalization. Key learning outcomes include: an understanding of standard project management processes, analytical techniques used in project management, and the different roles and responsibilities in projects.
3 cr.

MAN 375 Nonprofit Board Field Experience I

Prerequisite: Permission of instructor and junior standing in the College of Business. This is the first semester of a two semester course sequence. Students must successfully complete MAN 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the first semester students will attend board meetings and become oriented to the organization.
1 cr.

MAN 376 Nonprofit Board Field Experience II

Prerequisite: MAN 375 and permission of instructor and junior standing in the College of Business. This is the second semester of a two semester course sequence. Students

must successfully complete MAN 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the second semester students become involved with a member of the board in a project area.

2 cr.

MAN 380 Global Entrepreneurship

Prerequisite: MAN 251. This course is a practical course for students who may someday start, join, or hold a stake in a global enterprise venture. In addition, one of the newly emphasized themes will be that of the global entrepreneur, in recognition of the fact that increasingly, ventures are global from inception; and opportunities, resources, uncertainties, customers, and exits can come from anywhere, anytime. Thus, Global Entrepreneurship is targeted toward aspiring international and U.S. based entrepreneurs and their investors.

3 cr.

MAN 390 Special Topics in Management

This is a study of advanced topics in management of special interest to management majors, but not offered on a regular basis.

3 cr.

MAN 422 Conflict Resolution

Prerequisite: MAN 101 and junior status. This course provides in-depth coverage of conflict-resolution in organizational settings. Key learning outcomes focus on conflict styles and response alternatives along with various modes of resolution including alternative dispute resolution, third-party intervention, mediation, and arbitration.

3 cr.

MAN 433 Leading Teams

Prerequisite: MAN 101, MAN 201/MAN 204, MAN 323, and MAN 370. Management majors or sport management majors only. The course provides students with an enhanced understanding of current perspectives on leadership and managing teams. Key learning outcomes focus on understanding and problem-solving applications associated with: planning and organizing team projects; motivating team members; facilitating decision making in team situations; providing direction to a project team; expressing ideas and opinions in a team environment; responding and providing

feedback to team members; managing intra-team conflict; providing written feedback on performance to team members. Course includes career readiness element.

3 cr.

MAN 480-481 Internship in Management

See “Internships” on p. 31.

1-3 cr.

MATH Mathematics

(College of Arts and Sciences)

MATH 107 Mathematics For Elementary Education I

Prerequisite: Successful performance on the Western New England University placement test. This course is the first of a two-semester sequence in mathematics that satisfies the mathematics requirement for prospective elementary teachers. Prospective elementary teachers are introduced to the content of the elementary mathematics curriculum as well as some of the teaching methods used at the elementary level. The real number system is studied in depth. Topics include an examination of whole numbers, integers, and rational numbers with an emphasis on place value and the associated operations. Topics from numeration systems, number theory, and set theory are also developed. Problem-solving techniques and appropriate use of technology are integrated throughout the course. Offered in the fall semester.

3 cr.

MATH 108 Mathematics for Elementary Education II

Prerequisite: MATH 107 or permission of the instructor. This course is a continuation of MATH 107. A further study of the real number system, it focuses on exponents, decimals, and irrational numbers. Areas such as algebra, geometry, probability, and statistics are studied within the context of the elementary curriculum. Offered in the spring semester.

3 cr.

MATH 109 Pre-Calculus Mathematics

Prerequisite: Two years of algebra and one year of geometry. This is an overview of the algebra and trigonometry needed for analytic geometry and calculus and is designed for students who need a review before taking calculus. Topics include basic algebra, functions and graphs, radicals and exponents, trigonometric functions, identities, and

equations. TI-83/84 calculator is required. Offered in the fall semester.

3 cr.

MATH 111 Analysis for Business and Economics I

Prerequisite: Successful performance on the Western New England University placement test. This course covers modeling with single-variable functions in addition to a study of calculus as a method of optimization. Topics include fitting curves to data as well as linear, quadratic, and exponential functions with applications to supply, demand, cost, revenue, and profit. Emphasis is on the problem-solving approach with use throughout of the graphing calculator. TI-83/84 calculator is required. Offered fall and spring semesters.

3 cr.

MATH 112 Analysis for Business and Economics II

Prerequisite: MATH 111 or MATH 123. A continuation of MATH 111, this course considers modeling with multivariable functions. Topics include compound interest (both discrete and continuous), present value (both discrete and continuous), systems of linear equations, break-even analysis, Markov Chains, linear programming, probability distributions, and descriptive statistics. A brief study of optimization of multivariable functions using calculus is also included. TI-83/84 calculator is required. Offered fall and spring semesters.

3 cr.

MATH 115 Contemporary Mathematics

This course is a survey of some contemporary applications of mathematics. Topics, which may vary each year, will be chosen from among the following: voting theory, weighted voting systems, fair division, apportionment, probability, Euler circuits, financial mathematics, Hamilton circuits, minimum network problems, Fibonacci numbers, the golden ratio, and fractal geometry. Offered in the fall semester.

3 cr.

MATH 117 Mathematical Reasoning

This course is intended to satisfy two objectives. One objective is to learn some of the methods that mathematics uses to solve problems. The areas of mathematics to be considered may include logic, algebra, geometry, number theory, counting (sometimes referred to as combinatorics), probability, graph theory, etc. Also considered will be the role of proof in mathematics. A second objective is to learn how a mathematical approach can assist in

the general endeavor of solving problems. The approach includes: stating problems clearly and concisely, determining what is important and what is irrelevant, making conjectures, justifying conclusions using logic, etc. Various problem-solving strategies will be introduced and applied. Offered in the fall and spring semesters.

3 cr.

MATH 118 The Heart of Mathematics

This course is intended to help students discover what mathematics is truly about. Mathematics is not a set of formulas to be applied to a list of problems. Rather the goal is to show students that mathematics is creative, powerful, and artistic and to expose students to many techniques of thought that can be used to solve problems, analyze situations, and sharpen the way they look at the world. The course will emphasize basic strategies of thought and analysis as they apply to real life situations. The course will cover topics from number theory, geometry, topology, chaos, fractals, and probability. Through analyzing problems from these areas, students will be exposed to the power of mathematics and its inexorable quest for elegance, symmetry, order, and grace. Offered on demand.

3 cr.

MATH 119 Chance

This course focuses on quantitative literacy, using current events and how these events are reported in the media to examine fundamental statistical and probabilistic concepts. The goal of this course is to make students more informed, critical readers of current news stories, and to promote a deeper understanding of the probability and statistics that they will be exposed to in day-to-day life. Potential current event topics include interpreting polls (including margin of error), sports statistics, scoring streaks, lotteries and randomness, medical research, false positives, economic indicators, coincidences, statistics in the courtroom, academic testing, the census, risk assessment, and environmental news. To understand these topics fully, students may be exposed to graphical descriptive statistics, confidence intervals, probability, measures of central tendency and dispersion, basic combinatorics, hypothesis testing, conditional probability, chi-squared test, binomial distributions, sampling, correlation, linear regression, and more. Offered on demand.

3 cr.

MATH 120 Introductory Statistics for the Arts and Sciences

Prerequisite: Successful performance on Western New England University placement test. This is an introduction to the basic descriptive and inferential techniques for presenting, analyzing, and interpreting data that may arise in several fields. Topics include frequency distributions, measures of central tendency, probability, sampling, estimation, correlation and regression, hypothesis testing, and tests of significance. Emphasis is on understanding and interpreting, not on computations. A standard statistical software package is used throughout the course. The course is intended for general students, not for those whose major program requires BIS 220 or ENGR 212. Credit for both this course and BIS 220 is not permissible. TI-83/84 calculator is required. Offered fall and spring semesters.

3 cr.

MATH 123 Calculus I for Management, Life, and Social Sciences

Prerequisite: Three years of high school mathematics including two years of algebra. This is a study of functions, limits, continuity, the derivative, and applications of the derivative. Among the business related applied topics are supply and demand functions; marginal revenue, cost, and profit; and elasticity of demand; and inventory control. Other applied topics include looking at population trends, velocities and accelerations, depreciation of resources, and rates of change of medication in the blood stream. General applications include rates of change, curve sketching, and maximizing and minimizing functions. Credit for both this course and MATH 133 is not permissible. TI-83/84 calculator is required. Offered fall and spring semesters.

3 cr.

MATH 124 Calculus II For Management, Life, and Social Sciences

Prerequisite: MATH 123 or MATH 133. This is a study of exponential and logarithmic function, techniques and applications of integration, and multivariable calculus. Among the applied topics are models of growth and decay, continuous interest, payments on loans, and consumers' and producers' surplus. Credit for both this course and MATH 134 is not permissible. TI-83/84 calculator is required. Offered in the spring semester.

3 cr.

MATH 130 Problem Solving in Calculus

Corequisite: Fall MATH 133, Spring MATH 134. The course is specifically designed to help students improve their problem-solving skills in Calculus I and II. There will be emphasis on student class participation and analysis of solutions. The course will meet once a week. Offered fall and spring semesters on a pass/fail basis. May be repeated for credit, once.

1 cr.

MATH 133 Calculus I

Prerequisite: MATH 109 or the equivalent. This course is the first half of an introduction to single-variable calculus with an emphasis on trigonometric, exponential, and logarithmic functions. Topics include functions, mathematical models, limits, continuity, the derivative and applications of the derivative, the integral, and the fundamental theorem of calculus. Credit for both this course and MATH 123 is not permissible. TI-83/84 graphing calculator is required. Offered fall and spring semesters.

4 cr.

MATH 134 Calculus II

Prerequisite: MATH 133. This course is the second half of an introduction to single variable calculus, with an emphasis on trigonometric, exponential, and logarithmic functions. Topics include antiderivatives, techniques of integration, applications of integration, infinite sequences and series, approximating functions, parametric equations and Taylor series. A computer algebra system such as Maple is used. Credit for both this course and MATH 124 is not permissible. TI-83/84 graphing calculator is required. Offered fall and spring semesters.

4 cr.

MATH 150 Applied Discrete Mathematics

Topics include number systems, congruence and modular arithmetic, relations, sets, logic, Boolean algebras, Karnaugh maps, probability, graphs, trees, and graph coloring. Applications include RSA cryptography, SQL, logic circuits, PERT_CPM, and scheduling. Offered in the spring semester.

3 cr.

MATH 190 Special Topics in Mathematics

Topics in mathematics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

MATH 235 Calculus III

Prerequisite: MATH 134 or MATH 124. This is an extension of the basic concepts of calculus to functions of several variables. Topics include vectors and vector-valued functions, partial differentiation and applications, multiple integration and applications, vector fields, and line integrals. A computer algebra system such as Maple is used. TI-83/84 graphing calculator is required. Offered fall and spring semesters.

3 cr.

MATH 236 Differential Equations

Prerequisite: MATH 134. This is a survey of the standard solution methods and applications of ordinary differential equations. The emphasis is on first and second order equations, and the topics include separation of variables, qualitative analysis, linear equations, harmonic motion, and Laplace transforms. TI-83/84 calculator, or equivalent, is required. Offered fall and spring semesters.

3 cr.

MATH 245 Topics in Linear Algebra and Calculus

This course is a survey of topics from linear algebra and calculus. Topics from linear algebra include matrices and matrix operations, Euclidean n-space, solving systems of equations, linear transformations and orthogonal projections. Topics from calculus include polynomial, rational, exponential and logarithmic functions, limits, continuity, derivatives and optimization problems. Offered in fall semesters.

3 cr.

MATH 251 Advanced Discrete Mathematics

Prerequisite: MATH 150 or permission. This is a study of proof techniques and the writing of mathematical arguments in areas such as set theory, number theory, graph theory, relations, and functions. Emphasis is placed on this theory as it relates to computer science and computer programming. Topics also include algorithmic correctness, algorithmic efficiency, recursive definitions, cardinality, and computability. Credit for both this course and MATH 281 is not permissible. Offered in the fall semester.

3 cr.

MATH 276 Advanced Calculus

Prerequisite: MATH 235 or permission. This course provides students with an understanding of topics in calculus from an advanced standpoint. The material ranges across areas from theorems of vector calculus to limits and sequences of functions. More

specifically, the course includes the study of cardinality and the real number line, convergence of sequences, approximation of functions, and the generalization of these ideas to the definition of a metric space. The main purpose of this course will be to increase the student's familiarity with the behavior of functions, so as to extend their knowledge of calculus as well as to prepare them for the more abstract concepts of real analysis. Offered in the spring semester.

3 cr.

MATH 281 Foundations of Mathematics I

Prerequisite: MATH 124 or MATH 134. This course is an introduction to the foundational concepts necessary for the study of advanced mathematics. Topics in logic, proof and exploration, sets, sequences, relations, functions, and number theory will be discussed. Emphasis will be placed on the deductive reasoning process and the writing of mathematical arguments. Credit for both this course and MATH 261 is not permissible. Offered in the fall semester.

3 cr.

MATH 282 Foundations of Mathematics II

Prerequisite: MATH 251 or MATH 281 or permission. A continuation of MATH 281. Topics include the Principle of Mathematical Induction, cardinality, algorithms, recursion, difference equations, combinatorics, graph theory, and introductory concepts in algebra and analysis. Continued emphasis will be placed on mathematical reasoning and writing. Credit for both this course and MATH 262 is not permissible. Offered in the spring semester.

3 cr.

MATH 290 Special Topics in Mathematics

Topics in mathematics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

MATH 302 MTEL Prep

This course will provide additional resources to help prospective secondary mathematics teachers prepare for and pass the MTEL Mathematics test. The course will examine the content and structure of the test as well as identify topics requiring further focus and study. Both multiple choice and open-response questions similar to the official test will be used and students and the professor will prepare and present solutions to the class. Offered on demand.

2 cr.

MATH 306 Linear Algebra

Prerequisite: MATH 124 or MATH 134. Topics covered in this course include vectors and matrices, systems of linear equations, vector spaces, determinants, eigenvalues and eigenvectors, and transformations. Applications in many fields are discussed. The computer is used at the discretion of the instructor. TI-83/84 calculator is required. Offered in the fall and spring semester.

3 cr.

MATH 310 Topics in Actuarial Science

Prerequisite: MATH 235 and permission of the instructor. This is a course specifically designed to provide students with additional preparation for the actuarial examinations. Topics are selected from the areas of financial mathematics and actuarial models depending upon the needs of the students. The course may be repeated for credit subject to the permission of the instructor. Offered on demand.

1-3 cr.

MATH 333-334 Independent Study in Mathematics

See "Independent Study" on p. 30.

1-3 cr.

MATH 350 Engineering Analysis I

Prerequisite: MATH 235 and MATH 236. This course studies selected topics from vector calculus, line and surface integrals, Fourier series and integrals, and partial differential equations. The emphasis is on engineering applications. Offered in the fall semester and in the spring on demand.

3 cr.

MATH 363 Theory of Computation

Prerequisite: MATH 251 and CS 202, or permission of the instructor. This is a study of the mathematical background and methods needed in computer science especially in the specification, design, analysis, and verification of algorithms. Topics include predicate calculus, solution of recurrences, generating functions, finite state machines and formal languages, and introduction to computability and complexity. Offered in alternate spring semesters.

3 cr.

MATH 369 Linear Programming

Prerequisite: MATH 251 or MATH 282 or permission. A linear program (LP) calls for the optimization of a linear function subject to linear inequality constraints. This course studies the theory and applications of LPs. Topics include modeling using LPs, polyhedra,

the simplex method, duality, parametric and sensitivity analysis, LP software, and applications to game theory, network flows, and statistics. Students will also read and report on recent journal articles describing applications of linear programming to the solution of real-world problems. Offered on demand.

3 cr.

MATH 371 Modern Aspects of Geometry

Prerequisite: MATH 251 or MATH 282 or permission. This is an examination of various topics in geometry. Topics selected depend on the interests of the instructor and the needs of the students involved. Possible topics include finite geometries, Euclid's Elements (Book I), advanced topics in Euclidean geometry, Euclidean constructions and impossible constructions, transformations of the plane, non-Euclidean geometry, and projective geometry. Offered in alternate spring semesters.

3 cr.

MATH 372 Probability

Prerequisite: MATH 235. Topics include axioms of probability, basic combinatorics, conditional probability, independence, discrete and continuous random variables, mathematical expectation, laws of large numbers, and the central limit theorem. Offered in alternate fall semesters.

3 cr.

MATH 373 Statistical Modeling

Prerequisite: MATH 272 or permission. This course emphasizes the design and testing of statistical models for the purpose of describing variation in its proper context. Topics include basic statistics and descriptors of variation, simple and multiple linear regression models, confidence intervals, hypothesis testing, and ANOVA. Although mathematical theory is discussed, the emphasis is on analysis of real-world data and assessment of models. Statistical software such as R is used throughout. Offered in alternate spring semesters.

3 cr.

MATH 375 Creative Problem Solving

Prerequisite: MATH 251 or MATH 282 or permission. The course will discuss creative problems from all areas of mathematics. Students will learn problem-solving techniques, will combine some of the seemingly disparate parts of their mathematics background, and will gain an appreciation of new areas of mathematics, by looking at some of the fundamental questions that illustrate

the key ideas. There will be emphasis on student presentation and analysis of solutions, and students will learn how to present mathematical arguments while developing their mathematical creativity. Offered in alternate fall semesters.

3 cr.

MATH 377 Elementary Number Theory

Prerequisite: MATH 251 or MATH 282 or permission. This is the study of integers and their properties. The course provides a simple account of classical number theory as well as some of its historical background including divisibility; greatest common divisors; prime factorization; congruences; theorems of Wilson, Fermat, and Euler; pseudoprimes; multiplicative functions; and primitive roots. Other topics include recent applications of the classical subject area in cryptology and computer science. Offered in alternate spring semesters.

3 cr.

MATH 378 Combinatorics

Prerequisite: MATH 251 or MATH 282 or permission. Combinatorics concerns the mathematical theory of counting. This course emphasizes enumeration, but existence and construction issues will also be discussed. Topics include basic principles of combinatorics, distributions, inclusion-exclusion, generating functions, Polya theory, combinatorial designs, and error-correcting codes. Further topics can be selected from: Fibonacci numbers, partially ordered sets, Ramsey theory, and applications to graph theory. Offered in alternate fall semesters.

3 cr.

MATH 379 Graph Theory

Prerequisite: MATH 251 or MATH 282 or permission. This is an introduction to graph theory and its applications through a modeling process. Topics include degrees, isomorphic graphs, trees, connectivity, traversability, matchings, planarity, coloring, digraphs, Ramsey Numbers, networks, and distance. Offered in alternate fall semesters.

3 cr.

MATH 390 Special Topics in Mathematics

Prerequisite: Junior standing and permission of the instructor. Topics offered depend upon student interests as well as particular interests of instructors. The course is offered as often as faculty time and student interest permit. May be repeated for credit if topic differs.

1-3 cr.

MATH 412 Introduction to Topology

Prerequisite: MATH 251 or MATH 282 or permission. This course covers introductory topics in the general theory of topological spaces. Topics include closed sets, closure, limit points, basic open sets, subspaces, continuity, homeomorphisms, product spaces, connectedness, compactness, and separation properties. There is an emphasis on writing formally correct mathematical proofs. Offered on demand.

3 cr.

MATH 418 Introduction to Modern Algebra

Prerequisite: MATH 251 or MATH 282 or permission. This is an introduction to the axiomatic study of the algebraic structures of groups, rings, and fields. Topics include groups, subgroups, permutation groups, cosets, normal subgroups, group homomorphisms, factor groups, rings, subrings, polynomial rings, ideals, ring homomorphisms, factor rings, integral domains, fields, and the Fundamental Theorem of Algebra. There is an emphasis on writing formally correct mathematical proofs. Offered in alternate spring semesters.

3 cr.

MATH 420 Mathematical Modeling

Prerequisite: MATH 372 or MATH 236 or permission. This is an introduction to the construction and refinement of mathematical models. Applications include resource allocation, environmental planning, and decision theory. The mathematics involves difference equations, Markov chains, linear and dynamic programming, game theory, and queuing theory. Offered in alternate spring semesters.

3 cr.

MATH 421 Real Analysis

Prerequisite: MATH 276 or permission. This is an introduction to the rigorous treatment of analysis. Topics covered include the real number system, sequences, limits of functions, continuity, differentiation, integration, infinite series, sequences, and series of functions. There is emphasis on writing formally correct mathematical proofs. Offered in alternate spring semesters.

3 cr.

MATH 427 Complex Analysis

Prerequisite: MATH 276 or permission. This is an introductory course in the theory of functions of a complex variable covering standard topics: the algebra and geometry of complex numbers, differentiation, integration,

power series expansions, residues, and poles. Offered on demand.

3 cr.

MATH 451-452 Senior Project I & II

Prerequisite: Senior standing. Senior students will work with a faculty member of their choice on a research topic of interest. At the end of the spring term, the student will submit a paper and give an oral presentation to the faculty in the Department of Mathematics and to his/her peers based on the research done over the course of two semesters. Offered fall and spring semesters, respectively.

1 cr. fall, 2 cr. spring

MATH 480-481 Internship in Mathematics

See "Internships" on p. 31.

1-3 cr.

MATH 490 Seminar

Prerequisite: Permission of the instructor. Topics discussed depend upon the interest of the students. Seniors or unusually well qualified juniors may be admitted to the course only by permission of the department. Offered on demand.

3 cr.

ME Mechanical Engineering**(College of Engineering)****ME 204 Engineering Mechanics I**

Prerequisite: MATH 134 and PHYS 133. This course is intended to develop the student's problem-solving techniques while providing the requisite background in Newtonian mechanics common to all engineering disciplines. Student analytical skills are developed beyond elementary calculus through problem formulation utilizing vectors, vector calculus, determination of centroids and moments of inertia, and free body diagramming. Analysis of static (force equilibrium) situations involving particles, rigid bodies (with and without friction) and structures is emphasized: in the first third of the course. The remainder of the course is concerned with particle and planar rigid body kinematics and finally with particle and planar rigid body kinetics. A project applying both principles of Statics and Dynamics is required.

3 cr.

ME 205 Measurement Computing

Prerequisite: ENGR 105 or equivalent and PHYS 134. This introductory and hands-on experience course is offered to all students who have some knowledge or experience in programming. Concept of event driven programming is

introduced during class lectures while its applications to data collection and analysis are demonstrated during laboratory sessions. Students will learn how to use Object Oriented programming capabilities of Microsoft Visual BASIC to develop true 32-bit applications for data acquisition and control, which can run under Microsoft Windows 32-bit platforms. Practical application exercises related to data acquisition and control, database management, and analysis will be selected from the fields of engineering. There will be one 75-minute laboratory exercise every week where students will practice designing user interfaces, debugging codes, and running programs and interfacing transducers to PC. Computer projects will be assigned. The method of assessing student learning will include computer assignments, performance during laboratory sessions, and quizzes. One class hour and 1.5 laboratory hours.

2 cr.

ME 207 Engineering Mechanics II

Prerequisite: ME 204 and MATH 236 or concurrently. This course expands the material in ME 204 specifically for mechanical engineering students. The content includes: the kinematics of particles and of rigid bodies in two and three dimensions. Problem approaches to kinetics beyond Newton's 2nd law (work and energy, impulse and momentum) are applied to particles, followed by the application of these methods (including angular impulse and momentum) to systems of particles and to rigid bodies. A project applying these advanced methods of analysis is required.

3 cr.

ME 208 Mechanics of Materials

Prerequisite: ME 202 or ME 204 or ENGR 206. Corequisite MATH 235. This introductory course is offered to both Mechanical Engineering majors and nonmajors and is designed to increase the students' awareness of the static behavior of deformable bodies and to provide them with the necessary background to take advanced courses in solid mechanics. Students will determine pertinent mechanical properties of materials from stress-strain diagrams; analyze statically indeterminate members; analyze the effect of temperature change in members; determine the state of stress and strain at a point resulting from uniaxial, biaxial, and triaxial loading; determine stresses and displacements in axially, flexurally, and torsionally loaded

members; determine the stresses in thin-walled pressure vessels; determine the principal stresses, the maximum in-plane shear stresses, and the absolute maximum shear stress in members subjected to combined loadings; and determine the critical stress in ideal columns subjected to various types of supports. An individual written report analyzing an aspect of mechanics of materials and a group project involving design, building, and testing are required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

ME 303 Thermodynamics I

Prerequisite: CHEM 105 and MATH 235. This introductory course is offered to both Mechanical Engineering majors and nonmajors and is intended to familiarize students with the fundamental concept of the first and second law of thermodynamics. Students will learn how to determine the thermodynamic properties of real and ideal substances by using thermodynamic property tables and mathematical relationships. The concepts of energy, heat, work, entropy, reversible, and irreversible processes are introduced and applied to real engineering systems and thermodynamic cycles. Students are expected to use software packages to perform the assigned computer projects. Quizzes, homework assignments, a midterm, and a final exam will be used to assess a student's performance.

3 cr.

ME 304 Thermodynamics II

Prerequisite: ME 303. This intermediate course is offered to Mechanical Engineering majors and nonmajors and is designed to teach thermodynamic analysis of various power and refrigeration cycles. The first and second law analyses of the Carnot, Rankine, Otto, Diesel, Brayton, Sterling, and Ericsson cycles will be studied. Reheating and regeneration concepts will be discussed and applied to the Rankine cycle. Maxwell relations are used to establish relationships among thermodynamic properties. Students learn how to analyze nonreactive ideal gases such as the air-water vapor mixture. Each student is expected to work on an independent design project dealing with power or refrigeration systems and submit a final written report. The method of assessing students includes homework assignments,

quizzes, exams, computer projects, and a design project.

3 cr.

ME 309 Materials Science

Prerequisite: CHEM 105 and PHYS 134. This course introduces the fundamental concepts of material science and engineering. Students are provided with information concerning the interrelationship between the microstructure of a material, its properties, and its processing. The analysis of mechanical properties, the manufacturing process, the material specifications for a selected application or component, and the advantages and limitations of the selected material are presented. Major topics include: material selection, crystallographic structure, diffusion, solidification, phase diagrams, microstructure, and mechanical properties of different classes of materials. The course is presented in a series of classroom lectures, selected videos, case studies, and independent investigations. A project and a technical poster presentation are required. The methods of assessing students include quizzes, exams, homework assignments, and applications of principles to case studies.

3 cr.

ME 311 Mechatronics

Prerequisite: ME 203 or ME 207 and ME 205 or permission of instructor. Mechatronics is the synergistic integration of mechanism, electronics, computer control, and information technology to achieve a functional system. This course centers around the modeling and analysis of the basic hardware and software components of PC-based data acquisition and control, and electro-mechanical systems including sensors, actuators, signal processing, microcontrollers, mechanisms, and PID motion controls. Hands-on experience of the applications and programming of simple mechatronic systems is provided. The method of assessing students includes quizzes, homework assignments, exams, and laboratory reports.

3 cr.

ME 313 Mechanical Laboratory I

Prerequisite: ME 203 or ME 207; ME 208; ME 205 or concurrently; and ENGR 212 or IE 212 or concurrently; or permission of the ME laboratory coordinator. This course is the first in a three-course sequence designed to give students hands-on experience in the use of laboratory instruments and in the collection and interpretation of data. Experimental

methodology and communication of experimental results are stressed throughout the course. The course also serves to enhance the technical writing skills of the student. A student works in a team to perform laboratory experiments in dynamics, mechanics of materials, measurement techniques, data acquisition, and manufacturing. A written report or technical memorandum is submitted either by each student or by the group. The assessment is based upon the quality of both the writing and engineering content of the written reports. One class hour, one three-hour lab.

2 cr.

ME 314 Mechanical Laboratory II

Prerequisite: ME 303; ME 313; ME 316 or concurrently; or permission of the ME Lab Coordinator. This course, the second in a three-course sequence, builds on the skills developed in ME 313. Experimental methodology and communication of experimental results are also stressed throughout this course. A student works in a team to perform laboratory experiments in material science, mechanics of materials, fluid mechanics, alternative energy, data acquisition, SPC and manufacturing. A written report or technical memorandum is submitted either by each student or by the group. Additionally, each student works on an interdisciplinary team design project under the supervision of faculty project advisors. Periodic written progress reports and a final written report are submitted. A final oral report is presented before an assembly of faculty and students. The assessment is based upon the quality of both the writing and engineering content of the written reports.

2 cr.

ME 316 Fluid Mechanics

Prerequisite: ME 203 or ME 207; ME 303 or permission of instructor. This introductory course is offered to both mechanical engineering majors and nonmajors and is designed to provide students with the background and tools required to develop a physical feel for the phenomenon of fluid motion, to develop practical methodologies for the solution of engineering flow problems encountered in modern technology, and to prepare students to enter professional practice. Students become familiar with pressure measurement; hydrostatic forces on submerged surfaces; developing and using the continuity, momentum, and energy equations; dimensional analysis and dynamic

similitude; analysis of flow in closed conduits; calculating the drag force on various two- and three-dimensional bodies; and understanding boundary layer theory, model testing, and fluid measurement techniques. A team design project involving a typical fluid dynamics problem is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

ME 318 Design of Solar Energy Systems

Prerequisite: ME 303. This course is an introduction to the theory and application of various solar energy systems, including principles of solar energy collection, conversion, storage, and distribution. Topics such as solar air and water heating and cooling applications, their components and systems in addition to Passive solar strategies and concepts are also highlighted in this course. The course aims at enhancing the students understanding on solar energy availability, collection, and potential utilization of solar energy in improving the indoor environmental quality of built-up spaces. A project involving the design of an energy independent home is required. The methods of assessing students will include homework, quizzes, examinations, classroom discussions, design projects, and a final exam. 3 class hours.

3 cr.

ME 320 Mechanical Vibrations

Prerequisite: ME 203 or ME 207; ME 208; MATH 350. This course is an introductory treatment of vibrating systems. Students learn to analyze both free and forced, undamped and damped, single degree-of-freedom systems using both equilibrium and energy methods. The method of mass and spring equivalence as applied to both translational and rotational systems is also presented. The study of the response of rotating machinery, dynamic transmissibility, and vibration isolation systems subject to sinusoidal inputs are included. Students learn mathematical methods of analyzing nonsinusoidal inputs using Fourier series; Fourier transforms and convolution methods are introduced to solve two degree-of-freedom systems using matrix methods and to apply the technique to the design of a vibration absorber. An introduction to continuous systems using Rayleigh's and other approximate numerical methods are made. The means of assessing students include homework assignments,

quizzes, in-class exams, and a comprehensive final exam.

3 cr.

ME 322 Manufacturing Processes

Prerequisite: ME 309 or BME 340 or permission of instructor. This is an introductory course that introduces the fundamentals of a variety of manufacturing processes. Students will focus on both the theoretical and practical aspects of manufacturing processes and materials selection while receiving an introduction to the language of manufacturing. The student will learn to design, analyze, and control each manufacturing process, and quantify its capabilities, typical applications and its advantages and limitations. The topics highlighted in this course are: material selection, metrology, and quality control, casting, forming, material removal, joining, heat treating, and the integration of these techniques into a manufacturing system. The course is presented in a series of classroom lectures, selected videos, case studies, and laboratory experiments which provide students with hands on manufacturing experience. Each student will be assessed by their performance on quizzes, exams, homework assignments, and applications of the learned principles to case studies and laboratory experiments.

3 cr.

ME 410 Advanced Mechanical Engineering Application Techniques

Prerequisite: MATH 350; ME 208; ME 316 or concurrently; ME 320 or concurrently. This course is a study of the development and application of advanced solution techniques to engineering problems. The course includes the linearization, and/or solution of key differential equations in solid mechanics, fluid mechanics, and the thermal sciences. Solution procedures studied include the use of finite difference approximations, linear algebra, Laplace transforms, complex functions, conformal mapping, and advanced calculus. Engineering applications include fluid dynamic flowfield predictions (CFD), approximation techniques for stress and vibration in mechanical systems, and an introduction to analysis of mechanical engineering control systems. An individual written report analyzing an aspect of an application technique is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

ME 415 Wind/Water Turbine Fundamentals

Prerequisite: ME 303 and ME 316. This course introduces wind and water turbines for power generation, with a focus on current Horizontal Axis Wind Turbines (HAWT). Fluid machinery design concepts are developed which include: lift/drag mechanism, control volume theory, Euler's pump equation and fluid machinery similitude. Application of control volume theory to wind and water turbine design and optimization is formulated, and applied to several case studies. The Betz limit and current HAWT wind turbine aerodynamic limitations are formulated. Key mechanical and electrical components are studied with a focus on overall system performance. New and novel wind/water turbine concepts are discussed and analyzed.

3 cr.

ME 417 Heat Transfer

Prerequisite: ME 303 and ME 316. This senior level course is offered to both Mechanical Engineering majors and nonmajors and is designed to convey the basic principles of heat transfer by incorporating a broad range of engineering applications. Students will use conduction, convection, and radiation equations to determine heat transfer rates over and through plane, cylindrical, and spherical surfaces; determine the optimum thickness of insulation; analyze the effect of heat generation on temperature distribution and heat rate; determine the performance of extended surfaces; calculate the temperature distribution and evaluate the heat rate for two-dimensional steady-state conduction; determine the temperature and heat transfer rate for one-dimensional and multidimensional transient conduction; determine the heat transfer rate over a cylinder, sphere, noncircular cylinders, and on a tube bank in the cross-flow of a gas; and perform engineering calculations that involve energy balance and appropriate convection correlations for internal flows and radiation exchange between surfaces. A team project involving a heat transfer experiment and design of cooling fins for a leaded cylindrical wall is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

ME 419 Experimental and Analytical Stress Analysis

Prerequisite: ME 208; MATH 350; ME 435 or concurrently. This senior level course builds on the material presented in ME 208

and develops the students' ability to apply the principles of advanced mechanics of materials to problem solving while applying common experimental techniques for solution verification. The analytic studies will involve the study of three-dimensional states of stress and strain, unsymmetric bending of beams; stresses and deflections of curved beams and beams on elastic foundations; deflection and slope in beams using Castigliano's theorem; and stresses in thick walled cylinders. The experimental studies include the basic theory and installation techniques of electric resistance strain gauges, photoelastic coatings, and applications of load and deflection measuring techniques. Applications of these techniques in the verification of analytical solutions is emphasized throughout the course. Methods of assessing students include homework assignments, laboratory reports, quizzes, a midterm, and a comprehensive final exam.

3 cr.

ME 420: Wind/Water Turbine Aerodynamic Design

Prerequisite: ME 415 and ME 316. This course applies control volume theory, Euler's fluid machinery equation and fluid dynamic similitude to the aerodynamic design of wind and water turbines. Control volume theory is used to generate turbine performance goals and realistic design constraints. Key aerodynamic relationships for wind/water turbine concepts are formulated and applied to real wind turbine applications. Both turbine cascade theory and turbine blade element theory are developed. Cascade theory applications include turbine performance estimates using available predictions and the use of fluid dynamic similitude. Blade element theory includes turbine blade design using airfoil lift/drag polars. Blade solidity and rotational speed are investigated for optimum performance.

3 cr.

ME 421 Green Engineering: Materials Selection in the Life Cycle Design Process

Prerequisite: ME 208 and ME 309. The course focuses on the environmental impact of engineered products and processes and will develop a systemic approach for the design or re-design of these products for improved sustainability. Topics will include materials and product design, materials selection methodologies, principles of green engineering and eco-design, along with Life

Cycle Analysis (LCA). Open-ended design problems and case studies will illustrate these concepts. The methods of assessing students include homework, quizzes, and design project presentations and reports.

3 cr.

ME 422 Control Systems

Prerequisite: MATH 350 and ME 203 or ME 207. This is an introductory course in the analysis and design of controls for mechanical systems. Students learn to apply advanced mathematical procedures such as matrix algebra, complex variables, and Laplace transforms to model both mechanical and control systems. Control system representation and performance are studied. Students learn methods of modeling and testing systems for stability, time domain analysis and design specifications, frequency response, and feedback characteristics. Computer application and modeling are used extensively in the course. Several computer projects are assigned. The method of assessing students includes class participation, homework, examinations, projects, and a final exam.

3 cr.

ME 423 Product Development and Innovation

Prerequisite: Senior standing in Engineering. This course will cover new product innovation from both an entrepreneurship and intrapreneurship perspective. Students will learn about generating and identifying business opportunities, assessing concept ideas from technical, market, and financial perspectives; designing and developing new products; testing prototypes from technical and market perspectives; and developing a marketing plan including launch, monitoring, and measurement provisions. Interdisciplinary teams of business and engineering students will apply these principles to develop product concepts, prototype products, final designs, and marketing plans for a new consumer or business product. The final designs and plans will be presented to an expert panel of business executives, investors, and faculty.

3 cr.

ME 425 Design of Machine Elements

Prerequisite: ME 208 and ME 309 or BME 340. This senior level course is designed to introduce students to the methodologies involved in the analysis and design of simple machine parts. The impacts of social, economic, and material constraints on the design process are also considered. Students use failure theories to

determine the state of stress in members made of ductile or brittle materials subjected to either steady, alternating, or combined steady and alternating stresses; construct fatigue diagrams and fatigue failure curves; and use Miner's Equation to analyze the state of stress in materials subjected to various loading cycles. Topics include the design of circular and noncircular shafts subjected to steady and fluctuating loads, the determination of the characteristics of clutches and brakes to satisfy operating conditions; the specification of springs subjected to either steady or fluctuating loads to satisfy design specifications; and the specification of threaded fasteners. A project involving the design of machine elements is required. The method of assessing students includes homework assignments, quizzes, examinations, and projects.

3 cr.

ME 426 Gas Dynamics

Prerequisite: ME 303, ME 316, and senior standing. This course introduces students to the analysis and design procedures currently used for solving engineering problems in compressible fluid flow. Students learn how to combine the concepts of dynamics, thermodynamics, and fluid mechanics to generate useful analyses for the design of fluid machinery. Students use control volume theory and several derived compressible flow analyses to develop design procedures for wind tunnels, exhaust pipe tuning, aircraft inlets and nozzles, shock tubes, and gas turbines. Several case studies encompassing contemporary design problems from industry are used in the classroom to enhance the learning process. An individual design project using these methods is assigned. The method of assessing students includes classroom participation, homework assignments, examinations, and a final exam.

3 cr.

ME 430 Metrology: The Science of Measurement

Prerequisite: Senior standing in Biomedical, Industrial, or Mechanical Engineering. This course is an introduction to the fundamentals of metrology, the science of measurement. Students will be introduced to real-world applications in topical areas including process certification, conventional and advanced inspection tools and techniques, gage repeatability and reproducibility (Gage R&R), and re-engineering techniques of precision machine components using Faro Arm, White Light, Coordinate Measurement Machines

(CMM), and Non-Contact Lasers. This course provides students with the ability to make judgments regarding the proper selection and usage of metrology tools and processes for advanced measurement techniques. It also, facilitates the application of metrology skills to advanced project work in the engineering curricula, as well as to the needs and practices of industry. The methods of assessing students include homework, quizzes, examinations, classroom discussions, hands-on laboratories, and a final exam.

3 cr.

ME 435 Mechanical Laboratory III

Prerequisite: ME 314; ME 311 or concurrently; ME 417 or concurrently; and senior standing. This is the last course in a three-course laboratory sequence. The experimental methodology and communication skills developed in ME 313 and ME 314 are reinforced and the engineering team approach is also used throughout the course. Each student, as a member of a team, experiences four distinct activities: the first is a Geometric Dimensioning and Tolerancing (G,D&T) exercise; the second is a vibrations analysis; the third is in energy systems analysis; and, the fourth is an interdisciplinary team design project where team members work on a semester-long project under the guidance of a faculty project advisory committee. Technical writing and presentation skills are honed in preparation for the senior design project capstone course. The assessment is based upon the quality of both the writing and engineering content of the written reports, the oral presentation, and a laboratory final exam. One class hour, one three hour lab.

2 cr.

ME 437 Design Projects

Corequisite: ME 439. Selected students work on an independent design project in the semester prior to enrolling in ME 440. This course is intended to provide students with the opportunity for a two-semester project sequence with ME 440. See description for ME 440.

3 cr.

ME 439 Professional Awareness

Prerequisite: Senior standing. This course is designed to make students aware of some of the problems, concerns, and responsibilities of an engineer as a professional. In addition, students are guided in formulating a proposal for a Senior Design Project in preparation for project work in ME 440. Students participate in discussions, led by invited speakers, on

topics that enable them to write a professional résumé, interview for a job, generate an effective and substantive report, and make an effective technical oral presentation. Students are exposed to ethical issues in engineering environments; made aware of the necessity of protecting their work with either patents, copyrights, trademarks, and trade secrets and of not infringing on the similar rights of others; and apprised of issues of safety in the work place, product liability, and the importance of professional registration. Faculty and representatives from industry present ideas for Senior Design Projects and each student chooses a project and develops and writes a project proposal under the supervision and guidance of a faculty advisor. The assessment in this course is based on students' participation in discussions, the submission of short papers on some of the issues raised in the presentations, and the quality of the project proposal and oral presentation. One class hour.

1 cr.

ME 440 Senior Design Projects

Prerequisite: ME 439 and graduating senior status. This is a capstone design course that prepares students for entry-level positions. In this course, each student works on an independent engineering project under the supervision of a faculty advisor. Students apply the design process and communicate the results of their project work in both an oral and written form. Oral reports are presented before an assembly of faculty and students. Students apply engineering design principles either by working on a product, improving a product, or designing experiments to investigate causes of either an observed phenomenon or a problem in engineering. Students are required to demonstrate their achievements using appropriate laboratory exhibits. Students who select industry-sponsored projects have the opportunity of working with the industrial advisor in an actual engineering environment. The assessment in this course is based on the students' level of commitment demonstrated throughout the semester, the level of achievement attained in the project, the recording of activities in a log book, and the quality of the written report and oral presentation. Meeting hours by arrangement.

3 cr.

ME 444 Computer Applications in Mechanical Engineering

Prerequisite: ME 417 or concurrently; and senior standing. This advanced course is offered to Mechanical Engineering majors. Students learn to use computational methods and numerical techniques in conjunction with spreadsheet packages to solve practical engineering problems encountered in solid mechanics, fluid mechanics, heat transfer, dynamics, machine design, measurements, and vibrations. The development of computer algorithms/macros for either design or analysis is also emphasized. Students use case studies to investigate problems requiring a multidisciplinary approach. A total of 10 computer projects will be assigned. Each student is expected to work on two independent design projects and submit a final written report for each project. The methods of assessing students include computer assignments and the design projects.

3 cr.

ME 445 Design of Alternative Energy Systems

Prerequisites: ME 303, ME 316, and ME 417 or concurrently. This course is an introduction to the theory and application of various alternative energy systems, including solar, wind, fuel cells, geothermal, and ocean waves. Students will become familiar with calculating the thermal performance of various alternative energy systems, and learn the various limitations and practical examples where each is used. A project involving the design of an energy independent home is assigned. The methods of assessing students include homework, quizzes, examinations, classroom discussions, a design project, and a final exam.

3 cr.

ME 447 Fundamentals of Flight

Prerequisite: ME 203 or ME 207, ME 303 or concurrently, and ME 316 or concurrently, or permission of instructor. This course is an introduction to the fundamentals of flight, with a focus on engineering aspects of flight. Topics include basic aerodynamics of subsonic flight, airfoil and wing design, airplane performance at various flight attitudes and conditions, aircraft stability and control, airplane systems and instruments, airport and flight environments, navigation, and aviation weather. Basic wind tunnel experiments and a flight simulator are also used to demonstrate the concepts covered during classroom sessions. The methods of assessing students include

homework, quizzes, examinations, classroom discussions, a team-based aerodynamic design project, and a final exam.

3 cr.

ME 449 Computer-Aided Engineering

Prerequisite: Senior Engineering standing. This course is offered to all engineering majors. Students learn the fundamentals of conceptual design and engineering analysis/simulation. Computer hardware and software required to perform solid modeling and finite element analysis are presented. Commercial software packages such as SDRC Master Series and Fluent are used during the laboratory sessions to provide students with hands-on experience related to the concepts learned during class lectures. Students will use these commercial tools to generate solid models and import the geometry into the simulation module to perform finite element analysis or design optimization. Each student will complete 14 solid modeling and finite element assignments outside of the class and laboratory periods. Additionally, each student will work on an independent design project and submit a final written report. The methods of assessing students include computer assignments, performance during laboratory sessions, and the design project. One class hour and three hours lab.

3 cr.

ME 460 Noise Control and Engineering Acoustics

Prerequisite: Junior or senior standing in Engineering. Noise has become a major factor in influencing the marketability and competitiveness of industrial products such as cars and washing machines. In addition many products are required to satisfy strict legal and regulatory noise limits, e.g. aircraft take off noise. This course introduces to engineering students the fundamentals of acoustics, vibrations, and noise control. It then uses these principles in designing effective noise-control solutions to common engineering problems. Students will learn the effects of noise on people. Students will perform several laboratory and field experiments. Several case studies encompassing contemporary design problems from industry are used in the classroom to enhance the learning process. An individual design project using these methods is assigned. The method of assessing students

includes classroom participation, homework assignments, examinations, and a final exam.
3 cr.

ME 466 Applied Computational Fluid Dynamics

Prerequisites: ME 304 and ME 316. This is a study of fluid machinery design. Topics include boundary layer theory; procedures for analyzing fluid flow losses; compressible flow effects; design concepts and analyses for airfoils, airfoil cascades, compressors, and turbines; model testing and evaluation; and introduction to gas turbine analysis and design. A design project involving the use of analytical and experimental methods is required. The methods of assessing students include homework, quizzes, examinations, classroom discussions, a design project, and a final exam.
3 cr.

ME 480 Internship in Mechanical Engineering

See "Internships" on p. 31.
3 cr.

ME 490 Special Topics in Mechanical Engineering

A study of an advanced topic in engineering of special interest to mechanical engineering majors.
3 cr.

METR Meteorology

(College of Arts and Sciences)

METR 101 Introductory Meteorology

This is an introductory course in meteorology for the non-technical student. Topics include the earth-sun system, the earth's atmosphere, the earth's heat budget, weather measurements, clouds, horizontal air movement, stability, fronts, short-term weather forecasting, and climate. Two class hours, three-hour lab.
3 cr. Laboratory fee \$50.

MK Marketing

(College of Business)

MK 200 Principles of Marketing

Prerequisite: Sophomore standing. This course is an exploration of the role of marketing both within the firm and within society. The course examines concepts, functions, and institutions involved in the process of developing and distributing products and services to consumer,

industrial, and international markets. Offered in the fall and spring semesters.
3 cr.

MK 260 Marketing for Entrepreneurs

Prerequisite: MK 200. This course deals with the marketing function from the small, entrepreneurial organization perspective. Jay Levinson in his 1984 book *Guerrilla Marketing* describes an unconventional way of performing promotional activities (advertising, public relations, sales promotion, and personal selling) on very low budgets. Levinson called his unconventional approach guerrilla marketing. His original target audiences were small businesses and entrepreneurs who sought to maximize their profits while minimizing their investment in marketing. Over the years *Guerrilla Marketing* has been so successful that today many large organizations are employing its techniques and tactics. This course focuses on the guerrilla marketing approach and techniques as used by entrepreneurs in the real world. Offered in the fall semester.
3 cr.

MK 301 Buyer Behavior

Prerequisite: MK 200. This course examines the marketing of goods, services, ideas, places, people, and events to traditional and organizational consumers. Special emphasis is placed on buyer behavior theories with marketing management implications, and data collection for problem discovery relative to buyer behavior. Offered in the fall and spring semesters.
3 cr.

MK 311 Multinational Marketing (Formerly MK 411)

Prerequisite: Junior standing and MK 200. This course is an introduction to the complexities and implications of foreign markets, the contemporary environment, problems, and practices in international and global marketing. Emphasis is on decision-making and policy formulation including demographic, cultural, economic, political, legal, technological, logistical, and competitive aspects of doing business outside the home country. Offered in the fall semester.
3 cr.

MK 317 Promotional Strategy

Prerequisite: MK 200. This course integrates marketing communication theory, concepts, and research with in-depth treatment of all elements of the promotional mix—advertising, sales promotions, direct marketing, public

relations and publicity, and personal selling. The course covers the fundamentals of marketing communications. Offered in the fall and spring semesters.

3 cr.

MK 318 Marketing Research

Prerequisite: MK 200 and BIS 220. This course is a study of the quantitative and qualitative techniques of marketing research and their effective use in marketing management. The course emphasizes the flow of marketing information, the development of sound primary research, and the adaptation of research tools to management planning and decision making. Offered in the spring semester.

3 cr.

MK 320 Price and Product Strategy

Prerequisite: EC 111 or EC 112, MK 200, BIS 220, and MK 301. Marketing is about the exchange process of products and services for monetary consideration between buyers and sellers. This course examines the creative and management processes, approaches, and analytical tools and techniques involved in creating products/services and setting the prices for them. The teaching pedagogy employs interdisciplinary student teams that identify customer needs and create product/service design and pricing solutions for them. While the major focus will be on the development and pricing of new products, other product and pricing issues such as product life cycle, product development and pricing, product line pricing, branding, and price-quality relationship will be covered. Offered in the spring semester.

3 cr.

MK 322 Sales and Sales Management

Prerequisite: MK 301. This course is an examination of the role of personal selling in the marketing mix. Planning, training, organizing, forecasting, and reporting of individual sales personnel and group sales activities are emphasized. Offered in the spring semester.

3 cr.

MK 323 Distribution Strategy

Prerequisite: MK 301. This course examines channels of distribution as organizational networks that create value for the customer through the generation of possession, time, and place utilities. The approach will be both strategic and managerial—strategic in the sense that marketing channels are value adding chains that create competitive advantage, managerial in the sense that channels must be designed, developed, and maintained as the

marketing environment changes. Offered in the fall semester.

3 cr.

MK 326 Venture Feasibility

Prerequisite: MAN 251. This course examines the transformation of a business idea into a business venture concept. It focuses on the following three questions: What is the business concept and model? Is the business viable? What are the critical success factors for the business? This course enables students to understand how the entrepreneur takes a business idea and converts it to a business enterprise. Offered in the spring semester.

3 cr.

MK 333-334 Independent Study in Marketing

See “Independent Study” on p. 30.

3 cr.

MK 340 Promotion Design and Applications

Prerequisite: BIS 202 and MK 200. This is a course designed to give students experience applying promotions and graphic design theory to the development of promotional materials such as print advertisements, sales support materials, newsletters, flyers, logo design, business communication materials, and web pages. Students will be introduced to graphic design computer software used for creating marketing and sales materials. Offered in the fall and spring semesters.

3 cr.

MK 346 Relationship Marketing

Prerequisite: BIS 202 and MK 317. This course is an examination of relationship marketing strategies and techniques to develop long-term relationships with customers, suppliers, and other relevant stakeholders. Students will analyze the elements of relationship marketing and relate those elements to contemporary marketing communication issues. Topic areas include customer communication patterns, customer database management, interpretation of customer databases, database suppliers and end users, the impact of relationship marketing on quality, service, and the marketing mix, measuring and tracking customer satisfaction, building and maintaining customer loyalty, and the organizational prerequisites for relationship marketing.

3 cr.

MK 370 Electronic Marketing—Issues and Strategies

Prerequisite: BIS 202 and MK 317. This course investigates the dynamic world of electronic

commerce, the technological innovation that has taken the business world by storm. An overview of electronic commerce and the development of a digital marketing strategy will be the primary focus of the class. Readings from current journals, trade books, cases, and simulations will be used as a basis for class discussions.
3 cr.

MK 375 Non Profit Board Field Experience I

Prerequisites: Permission of instructor and junior standing in the College of Business. This is the first semester of a two semester course sequence. Students must successfully complete MK 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the first semester students will attend board meetings and become oriented to the organization.
1 cr.

MK 376 Non Profit Board Field Experience

Prerequisite: MK 375 and permission of instructor and junior standing in the College of Business. This is the second semester of a two semester course sequence. Students must successfully complete MK 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the second semester students become involved with a member of the board in a project area.
2 cr.

MK 390 Special Topics in Marketing

This course is a study of advanced topics in marketing of special interest to marketing or marketing communication/advertising majors, but not carried in the catalog on a regular basis.
3 cr.

MK 421 Marketing Management

Prerequisite: MK 318 and senior standing. This course focuses on the problem-solving and decision-making process of marketing managers as they endeavor to harmonize the objectives and resources of the organization

with the needs and opportunities in the marketplace. Case analysis is used to investigate managerial strategies and tactics and their implementation in a variety of marketing situations. Offered in the fall semester.
3 cr.

MK 422 Campaign Planning and Management

Prerequisite: MK 317, MK 340 as pre- or corequisite, and senior standing. This course is an investigation of the role of integrated marketing communication, the application and purchase of various media, and the impact on the client, consumer, business, and society. The focus of the course is to provide students with an overview of and practical experience with the use and effectiveness of marketing media such as television, radio, outdoor, print, and newer technologies. Integrated marketing communication strategies are developed and investigated. Offered in the fall semester.
3 cr.

MK 440 Marketing Seminar

Prerequisite: Senior Marketing or Marketing Communications/Advertising standing and MK 421 or MK 422. This course is intended to be taken during the student's final semester. This senior level capstone course is designed to help students develop a real-world perspective of competing in the marketplace. Students will use a course imbedded marketing computer simulation to learn how to analyze and assess a particular brand's market status, make decisions in several key marketing areas, experiment with alternatives, and see the results of their recommended choices. Offered in the spring semester.
3 cr.

MK 480-481 Internship

See "Internships" on p. 31.
3 cr.

MK 485 Marketing Communication/Advertising Internship

Prerequisite: Marketing Communication/Advertising majors. See "Internships" on p. 31.
3 cr.

ML Military Leadership

(Army ROTC/College of Business)

ML 100 Introduction to Army Physical Fitness

This course is based on the Army Physical Fitness Training Program. It is designed to introduce students to the ethos and approach

to fitness within the military and to augment their training as future leaders if they choose to pursue a commission in the United States Army. This course is open to all students.

1 cr.

ML 101 Foundations of Officership

This is an introduction to basic leader and officer competencies to establish a foundation for continued study. Learn basic life skills pertaining to personal fitness, time management, and interpersonal communication. Includes introduction of Army values and expected ethical behavior. Presents the unique duties and responsibilities of officers and the expectation of selfless service.

1 cr.

ML 102 Basic Leadership

This is an introduction of a generic model of problem-solving; instruction in basic skills that underlie effective problem-solving; relate the problem-solving model and basic skills to the resolution of military problems. Fundamental leadership concepts are introduced including factors that influence leader and group effectiveness.

1 cr.

ML 201 Individual Leadership Studies

This course emphasizes development of problem-solving and critical thinking skills through experiential learning activities. Application of effective written and oral communication, feedback, and conflict resolution skills.

2 cr.

ML 202 Leadership and Teamwork

This course focuses on self-development guided by knowledge of self and group processes. Experiential learning activities are designed to challenge current beliefs, knowledge, and skills.

2 cr.

ML 301 Military Leadership I

Overview of military leadership at a hands-on tactical level and theoretical level. Tactical leadership phase: focus on the small unit leader and skills required for successful leadership of unit from a fire team through platoon level. Theoretical leadership phase: focus on basic leadership principles, communication concepts, and motivation theory.

3 cr.

ML 302 Military Leadership II

This is an introduction to military leadership and management. Development of practical

managerial/leadership skills in planning, organizing, delegation, and control and development of instructor skills through instruction training, performance-orientated training, and individual classroom presentations.

3 cr.

ML 333-334 Independent Study in Military Leadership

See "Independent Study" on p. 30.

1-3 cr.

ML 401 Leadership and Officership I

This course provides an introduction of Army staff organization, functions, and processes. Personnel and training management; includes counseling techniques and Army career management perspectives. Refines leadership skills to lead people and manage resources.

3 cr.

ML 402 Leadership and Officership II

This course focuses on military law and ethics, constitutional basis of powers, basic principles of criminal law and ethics, rules of evidence, military judicial structuring within the Army, and issues dealing with problems faced by the newly commissioned officer.

3 cr.

MUS Music

(College of Arts and Sciences)

(All MUS courses satisfy Elements of Culture "A" requirement.)

MUS 101 Music Appreciation

A nontechnical course guides students in approaching classical music of the 16th – 20th centuries. Topics include the diversity of musical forms, historical backgrounds, composer biographies, and selected musical examples. Students will work in groups to produce a class radio show with the University's own WNEK-FM campus radio. This show will strive to bridge the gap between classical music and popular music. Offered every semester.

3 cr.

MUS 102 The Art of Singing

Intended for students with little or no singing background, this course is designed to be a "lab choir." Students will study basic techniques of good ensemble vocal production, and will learn fundamentals of music reading, musicianship, and choral singing. Lecture rehearsals may be augmented with assigned

listening and video screenings. Offered every year.

3 cr.

MUS 110 Beginning Guitar

This course is designed as an introduction to guitar for those with little or no experience on the instrument. Skills to be developed include learning basic first position chords, reading Tablature, playing melodies with a pick, learning basic strumming styles, and playing in a group. All techniques and music theory will be taught in the context of songs. An acoustic guitar is preferred for classroom use. Offered every semester.

3 cr.

MUS 120 American Popular Music (Formerly MUS 320)

This course is designed to be an introduction to the art of song as found in a wide range of American forms such as folk, musical theater, jazz, pop, and rock. Attention will be paid to the origins of music and the contexts in which it has been performed. The course aims to help students identify not only various genres but well-known singers and songs as well, and, for musical theater, some of the shows the songs are from. Poetic content and artistry of lyrics will be examined. Basic concepts of musicianship will also be covered (rhythm, meter, pitch, style, harmony, voice parts, instrumentation, etc.), as they pertain to the recordings. Offered in alternate years.

3 cr.

MUS 141-148 College Singers

Prerequisite: Permission of instructor. Students receive credit for participating in rehearsals and performances of the jazz choir.

1 cr.

MUS 151-158 Campus Chorus

Permission of instructor required. Students participate in the performance of the campus chorus.

1 cr.

MUS 161-168 Pep Band

Permission of instructor required. Students participate in the performances of the University's pep band.

1 cr.

MUS 181-188 Concert Band

Prerequisite: Permission of instructor required. Students participate in the practice and performance of the University's concert band.

1 cr.

MUS 190 Special Topics in Music

Topics in music that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

MUS 201 Basic Music Theory and Composition

An introduction to the art and science of music theory covering musical notation, rhythm, and harmony. These techniques are then put to practical use through the art of composing. The students will be able to write their own music and hear them performed in class. Offered every year.

3 cr.

MUS 210 Intermediate Guitar

Prerequisite: MUS 110 or permission. This course will introduce students to notes and chords beyond first position. The first unit is on power chords and barre chords. The second unit introduces students to basic finger style guitar and finger picking, with a special focus on acoustic blues and Travis-picking. All techniques and music theory will be taught in the context of songs. Skills to be developed include reading Tablature and chord charts, learning basic chord theory, and playing in a guitar ensemble. An acoustic guitar is preferred for classroom use. Offered every spring.

3 cr.

MUS 221 Curtain up! American Musical Theater (Formerly MUS 321)

Musical theater has become a uniquely American art form, reflecting American society and culture, and constantly evolving in terms of musical style, plot, and presentation, in keeping with changing societal mores and tastes. We will examine the mechanical components of the genre (plot, lyrics, score, dance, etc.); the history of its evolution as an American art form, from early roots in European and African American music and stage productions to current shows; and individuals who have made significant contributions to the art form—actors, composers, lyricists, directors, producers, and choreographers. Offered in alternate years.

3 cr.

MUS 230 The Music of Social Protest

An exploration of the historical contexts, and the political, psychological, and artistic components of the music, both in the United States and around the world. Through sound recordings, film viewings, and readings, students will become familiar with some of the major genres, artists, and musical compositions

that comprise the body of music of social protest. Issues of commercialization and the global market will be discussed in relationship to protest music. Offered in alternate years.

3 cr.

MUS 240 World Music

This course is an introduction to the music of the world's people, including South and Central America, Africa, and Asia. Music will be studied in the context of a people's history and cultural traditions. Includes extensive listening, film viewing, and cultural studies. Offered in alternate years.

3 cr.

MUS 250-251 CMSS Individualized Musical Instrument Instruction

Prerequisites: permission of the coordinator of music. Fee: \$300. Private instruction at the Community Music School of Springfield (CMSS) in such instruments as bass (electric and string), cello, clarinet, drums, flute, guitar (acoustic and electric), piano, saxophone, trombone, trumpet, and violin. Twelve 50 minute sessions. (If a student withdraws prior to the second lesson, \$254 of the fee shall be reimbursed. If a student withdraws after the second lesson but prior to the third, the student shall be reimbursed \$200 of the fee. If a student withdraws after the third lesson, the student shall not receive a reimbursement of any of the fee.) Students solely responsible for selecting the day/time of the lesson by dealing directly with the CMSS. Students are responsible for their own transportation to and from the CMSS. MUS 250 is offered in the fall, MUS 251 in the spring term. May be taken more than once for credit. Offered every semester.

3 cr.

MUS 290 Special Topics in Music

Topics in music that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

MUS 331 Rock and Roll: 1950 to 1990

An exploration of the evolution of rock and roll from the blues and folk influence to hip hop. Major artists will be studied, as well as the role of advancements in sound technology and the growth of music as an industry. Offered in alternate years.

3 cr.

MUS 390 Special Topics in Music

Topics in music that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

NSCI Neuroscience

(College of Arts and Sciences)

NSCI 212 Introduction to Behavioral Neuroscience

(Formerly PSY 312)

Prerequisite: PSY 101. This is a systematic study of the physiological basis of behavior with an emphasis on the role of the central nervous system. The course serves as an introduction to cellular and behavioral neuroscience for psychology and neuroscience majors. Topics include structure and function of the central nervous system (brain, neurons and synapses), sensation and perception, psychopharmacology, neuroanatomy and neurochemistry of learning and memory, emotions, and psychological disorders.

3 cr.

NSCI 250 Neuroscience Lab Rotation I

Prerequisite: NSCI 212. In this course the students have the opportunity to rotate into a faculty's neuroscience lab and acquire basic technological skills and knowledge of the research in progress.

1 cr.

NSCI 251 Neuroscience Lab Rotation II

Prerequisite: NSCI 250. In this course the students have the opportunity to rotate into a faculty's neuroscience lab and acquire basic technological skills and knowledge of the research in progress. The student will begin to take the lead on some experiments and show proficiency in animal handling and care.

2 cr.

NSCI 267 Neurobiology

Prerequisite: NSCI 212 and BIO 108. This course is an introduction to molecular and cellular principles of neurobiology and the organization of neural networks. Topics include developmental and synaptic plasticity. The course will include laboratory experience electrically recording nerve cells, computer simulations and modeling, and examining the use of molecular techniques in neurobiology.

4 cr.

NSCI 350/351 Neuroscience Lab Placement I and II

Prerequisite: NSCI 250/251. In this course the students will further increase their knowledge and skill level in a faculty's neuroscience lab. The student will conduct research more independently; assist in the training and supervision of other students; and read, comprehend, and lead journal club discussions of relevant research articles.

3 cr.

NSCI 405 Seminar in Neuroscience

Prerequisites: NSCI 267 and PSY 309. This capstone seminar will cover current approaches and techniques in the field of neuroscience. Guest speakers and Western New England faculty in neuroscience and related areas will present their research. In this course, students critically review the relevant literature, develop skills in oral presentation of scientific data and analysis of experimental results, and interact with faculty members working in fields associated with the topics discussed. The role of the instructor is to provide perspectives or guide the discussions, but the emphasis is on efforts by the students. The students are expected to critically read the designated papers and sufficient other references to place the paper in context, then clearly and critically present its results and conclusions and lead a round-table discussion with the other students.

4 cr.

NSCI 450/451 Senior Neuroscience Thesis I and II

Prerequisites: NSCI 350/351. In the first semester of this course the student will prepare and present a research proposal, and begin data collection for their senior research project. In the second semester the student will complete the data collection, analyze their results, and write a complete APA thesis of their senior research project. The student will assist the sponsoring faculty in preparing the paper for a conference presentation and for publication, if required.

4 cr.

PEHR Physical Education, Health, and Recreation**(College of Arts and Sciences)**

Note: PEHR 151 and PEHR 153-199 is a two credit hour coupling. PEHR 151 is lecture format, and PEHR 153-199 are practica.

No more than two 100-level PEHR courses can be taken for academic credit or can be included in the calculation of a student's overall GPA.

PEHR 151 Personal Health and Wellness

This is an exploration of current health issues and self-responsibility in achieving optimal health particularly as it pertains to college students. The foundation of the course is the development of a Personal Wellness Plan. Students will evaluate the outcomes of this program. Key topics include exercise, nutrition, weight management, dietary supplements, eating disorders, substance abuse, alcohol, sexual health, stress, tobacco, and consumer health. All students are required to take this course during their freshman year.

1 cr.

PEHR 153-199 Lifetime Activities Series

These courses are to be taken in the freshman year. In keeping with the University philosophy on physical education, the emphasis is on lifetime, carry-over value activities including soccer, swimming, volleyball, walking and jogging, aerobic dance, fundamentals of martial arts, personal fitness endurance/strength training, tennis, and racquetball. In addition, two activity based courses Games Children Play and R.A.D.—rape aggressive defense training for women are offered to fulfill the PE credit as well as for majors in teacher preparation and criminal justice (see descriptions below).

1 cr.

(Note: Freshmen are required to take one of the following activity courses)

PEHR 153 Racquetball

This course is designed to teach the lifetime activity of racquetball. The student will learn all aspects of the game including: safety and etiquette, basic equipment and clothing, grips, how to control the ball, strokes, strategies, and rules of the game. Grading is weighted more on effort than ability, so as not to deter the beginner from trying this course. A written exam is included in the course.

1 cr.

PEHR 154 Walking and Jogging

This course is designed to emphasize the importance of walking and jogging, which are both lifetime activities. The student will learn stretching techniques, how to choose the correct shoe and appropriate clothing, proper nutrition for a runner, and many other important aspects of walking and jogging.

The course is designed to start with walking and then gradually increase to walking and jogging intervals. It culminates with a required 30-minute jog. A written exam is included in the course.

1 cr.

PEHR 156 Swimming for Fitness

This course is designed for students who enjoy swimming as a form of cardiovascular exercise. There will be a basic stroke review; a swimming test and students will learn how to design a program to help them develop their aerobic fitness level in the pool. Grading will be based upon participation, program development, and a written test.

1 cr.

PEHR 158 Life Guarding

This course is designed to give students an opportunity to gain American Red Cross certification in life guarding, First Aid, CPR-Professional Rescuer, and Automated External Defibrillation. There will be a fee for materials and certification of approximately \$60.

1 cr.

PEHR 159 Fundamentals of Martial Arts

This course is designed to teach students about the traditional lineage of this famous art. It provides students with the knowledge and basic skills of martial arts (self-defense) i.e. breath control; pressure point control; and how to read, write, and speak some "Cantonese." It also provides students with an understanding of the five elements of life (fire, wood, earth, metal, and water) and how these elements are incorporated into their life. They will also be taught tolerance, patience, and forbearance. They will also learn the importance of trust, respect, integrity, collaboration, and communication. Grading will be based upon attendance, participation, and a written examination.

1 cr.

PEHR 160 Basketball

This course is designed for students at all skill levels that desire to learn more about the game, have a chance to play, and further develop their skills. Grading is based upon regular participation; and knowledge of the basic rules, strategies, and history of the game. A written exam is included in the course.

1 cr.

PEHR 161 Personal Fitness-Strength Training

This course is designed to give students an opportunity to develop a basic cardiovascular

and strength-training program to achieve personal fitness goals. The program focuses on the health related components of personal fitness. Students will be introduced to a variety of fitness equipment and free weights. Each student will develop a basic fitness program. Class time will include both group and individual routines. Grading will be based upon participation, a fitness assessment, and a final test or project.

1 cr.

PEHR 163 Games Children Play (Required for Elementary Education Majors)

This course is designed for but not limited to elementary education majors. Any student interested in working with children in a play setting may wish to enroll in this course. The course includes learning the dynamics of play and the "affective, cognitive, and motor" skill development of children. Students will also learn how to supervise children at play and integrate academic skills into a play environment. Students will also be introduced to the Massachusetts Comprehensive Health Education Frameworks. All students will be expected to teach a game to their fellow students. This course will include a written exam and students will be graded on participation, their teaching lesson, and a final exam. Elementary Education majors are required to take this course.

1 cr.

PEHR 165 R.A.D. Rape Aggression Defense

This is a comprehensive course that begins with awareness, prevention, risk reduction, and avoidance. It progresses to the basics of hands-on defense training. The Rape Aggression Defense System is dedicated to teaching women defensive concepts and techniques against various types of assault. It utilizes easy, effective, and proven self-defense tactics. Women will be equipped to make an educated decision regarding their personal safety. Participation, an exam, and a Dynamic Simulation with a final paper will determine grades.

1 cr.

PEHR 167 Tennis

This course is designed for students with skills ranging from beginner to advanced that wish to develop their skills and play both singles and doubles. Rules and strategies will be emphasized as well. Grading is based upon participation, and knowledge of the basic

rules and strategies of the game. A written exam is included in the course.

1 cr.

PEHR 168 Soccer

This course is designed to instruct participants in the basic skills (techniques and tactics) of soccer as well as develop their appreciation and understanding of the “world’s game.” Students will be evaluated on class participation, one exam, and a presentation on a past FIFA World Cup.

1 cr.

PEHR 171 Volleyball

This course is designed to instruct participants in the basic skills (techniques and tactics) of volleyball as well as develop their appreciation and understanding of this popular indoor and outdoor game with local roots. Students will be evaluated on class participation, and two brief exams on playing rules, court dimensions, and history of the game.

1 cr.

PEHR 181 Performance Strength Training-Advanced Conditioning

This course is designed for students interested in increased performance in athletics and advanced weight training techniques. Students must have at minimum a basic weight training background and a desire to perform exercises and routines at high intensity levels for a skill component. This course concentrates on skill related components of personal fitness. The student becomes familiar with calculating body composition, developing a cardiovascular program, and sport specific exercise routines. Basic anatomy (muscle structure and function) and a program design and implementation will be included. Grading will be based upon developing and implementing the training program for someone at an advanced fitness level.

1 cr.

PEHR 185 Softball

This course is designed for students with a basic skill level in softball that desire to play the game recreationally in a coeducational setting. Students will be expected to enhance their skill, learn the “Slow Pitch” game, and understand the basic rules and strategies of the game. A written exam will be included and participation, and knowledge of the rules and strategies of the game will determine grades.

1 cr.

[Up to two PEHR courses may be taken at the 200 level or beyond, for a total of six

credits. These additional courses can be taken after the completion of the PEHR 100 level requirements.]

PEHR 201 Principles and Practices of Successful Coaching

Prerequisite: Completion of two credit PEHR freshman requirement. Upon completion of this course, students will have a knowledge and understanding of the principles essential in coaching at the middle school, high school, or club level. Students will acquire the skills in five basic components necessary to be a successful coach. They are: the principles of coaching, the principles of behavior, the principles of teaching, the principles of physical training, and the principles of management. The course will include two exams, and observational and experiencing research paper on current issues in sports, and the development of a philosophy statement.

3 cr.

PEHR 202 Care and Prevention of Athletic Injury/Sport First Aid

Prerequisite: Completion of PEHR 100 level requirement—2 credits. Upon completion of this course, students will have a knowledge and understanding of the principles of care and prevention of athletic injury essential for coaching at the youth, middle, high school, or college level. Students will acquire skills in the following areas of learning: role of a coach in healthcare, basic first aid and CPR skills, and sport first aid for specific injuries. The course will include 10 hours of field experience with the Western New England training staff. It will be taught by one of our certified athletic trainers.

3 cr.

PEHR 480/481 Internship in Athletic Coaching

Prerequisite: Athletic Coaching Minors only. 12 credits toward minor, PEHR 201, 2.5 GPA, junior standing, or permission of the instructor. This course will provide the student with the opportunity to gain hands-on experience through a coaching experience. The student is placed in an amateur sport environment and their coaching experience is communicated to the faculty sponsor via faculty-student meetings, on-site visits, and a final paper. The internship in athletic coaching is an academic course with the primary goal of joining theory from the classroom with practice from the work experience. Students are encouraged to select an internship site that reflects the level of coaching that most interests them.

3-cr.

PH Philosophy

(College of Arts and Sciences)

All PH courses except PH 110 and PH 204 satisfy the ethical perspective requirement (GUR).

PH 103 Introduction to Philosophy

This is a critical examination of basic assumptions about reality, knowledge, and values. Questions to be discussed include “Does God exist?”; “Are we a combination of body and soul?”; “Do we have free will?”; “What do we know?”; “Can moral beliefs be objectively true or false?”; and “What is the best form of government?” Offered every semester.

3 cr.

PH 105 Philosophy Through Fiction and Film

This course will explore major philosophic themes as they appear in outstanding films and literature as well as in philosophic works. This will include issues such as appearance and reality modes of knowing, relativism and objectivism, ideal in living, the identity of the self, the nature of reality, and the problem of evil. Films such as *The Matrix*, *Contact*, and *Saving Private Ryan* will be examined, as well as literary works such as Tolstoy’s *The Death of Ivan Ilyitch*, Achebe’s *Things Fall Apart*, Crane’s *The Open Boat*, and Atwood’s *The Edible Woman*. Offered occasionally.

3 cr.

PH 110 Critical Thinking

Not open to students who completed PH 204. This is a study of informal reasoning techniques. Topics include methods of understanding and evaluating deductive and inductive arguments, ways of detecting fallacious reasoning, and skills helpful in making practical judgments. Emphasis is on enabling students to think more clearly and reason more precisely. Does not satisfy the ethical perspectives requirement of the GUR or the Humanities requirement for A & S. Offered every semester.

3 cr.

PH 190 Special Topics in Philosophy

Topics in philosophy that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PH 204 Symbolic Logic (Formerly PH 104)

This is an examination of formal methods for determining the validity of arguments and inferences. Topics include truth tables, truth trees, and natural deduction in both sentence

logic and predicate logic. Offered every spring. Does not satisfy the ethical perspectives requirement of the GUR or the Humanities requirement for A & S.

3 cr.

PH 208 Ethics

Prerequisite: Sophomore standing. This is an introduction to the basic concepts and principles of ethics as developed from ancient to modern times. The course covers theories of the good life such as hedonism, stoicism, and self-realization; the challenge of relativism; and theories of right and wrong, such as utilitarianism. Concepts to be discussed may include virtue and vice, moral duty, moral rights, and moral responsibility. Offered every semester.

3 cr.

PH 210 Ethics for Social Workers

Prerequisite: SW major or PSY major, or permission of instructor. This course presents students with principles drawn from moral philosophy and social work to be used in identifying, assessing, and resolving ethical dilemmas in social work practice. The course covers basic theories of ethics including utilitarianism and Kantian ethics as well as conceptions of virtue and vice. Case studies in social work are used throughout, applying theory to practice. Offered every spring.

3 cr.

PH 211 Business Ethics (Formerly PH 310)

Prerequisite: Sophomore standing. This is an examination of ethical problems confronting people in business and the professions. Issues include employee rights and duties, professional and corporate responsibility, affirmative action, environmental pollution, worker health and safety, advertising, government regulation, competing conceptions of justice, and alternative economic systems. This course can be taken to fulfill the PH 211 requirement. Cannot take both PH 211 and MAN 240 for credit. Offered every semester.

3 cr.

PH 218 Contemporary Moral Problems (Formerly PH 307)

Prerequisite: Sophomore standing. This is a critical examination of moral issues such as abortion, capital punishment, euthanasia, poverty and economic justice, pornography and censorship, racism and affirmative action, sexism and sexual equality, the just war, animal rights, and environmental protection. The course covers the social dimensions of these issues and the ethical principles that apply in

reaching sound conclusions regarding them. Offered every semester.

3 cr.

PH 230 Social and Political Philosophy (Formerly PH 303)

Prerequisite: Sophomore standing. This is an examination of basic questions of social and political philosophy focusing on issues of justice, equality, liberty, and rights. Combining the work of classical and modern political thinkers, the course addresses such questions as the following: "Should all people be treated equally?"; "What makes a society just?"; "How much liberty should people have?"; "What rights do people have?"; "What is the best form of government?"; and "Is capitalism preferable to socialism?" Offered in alternate years.

3 cr.

PH 231 Biomedical Ethics (Formerly PH 309)

Prerequisite: Sophomore standing. A critical examination of basic concepts, such as autonomy and privacy, and ethical issues in biomedical ethics, such as informed consent, euthanasia, assisted suicide, cloning, stem cell research, research and experimentation on animals, rights to healthcare, and the just allocation of medical care. Attention will also be paid to the application of major moral theories. Offered in alternate years.

3 cr.

PH 240 Gandhi and King

Prerequisites: Sophomore standing. A critical examination of the life, times, and thought of Gandhi and King. Special attention will be paid to Gandhi's campaigns to end apartheid in South Africa and the British occupation of India, as well as King's part in the U. S. civil rights movement. The course will focus on their ethical, political, and religious thought, and their commitment to nonviolence. This course will satisfy the ethical perspectives requirement of the GUR. Offered every other year.

3 cr.

PH 241 Philosophy of the Environment

Prerequisite: Sophomore standing. This course introduces students to the philosophical and ethical analysis of environmental issues, such as pollution, use of scarce natural resources, environmental justice, and climate change. In addition to focusing on environmental threats to human well-being, it explores the issue of humanity's duties to future generations, as well as to other species and their ecosystems. Other issues include corporate responsibility

for the environment and appropriate forms of activism in defense of the environment.

3 cr.

PH 290 Special Topics in Philosophy

Topics in philosophy that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PH 301 Great Philosophers

Prerequisite: PH 103 or PH 204 or permission of the instructor. This course is a critical examination of the thought of several philosophers including Plato, Aristotle, Aquinas, Descartes, Spinoza, Locke, Hume, Kant, and Russell. Topics may include moral and political thought, philosophy of religion, philosophy of mind, theory of knowledge. This course is normally offered only in the Off-Campus Program.

3 cr.

PH 304 Philosophy of Religion

Prerequisite: Sophomore standing. This course consists of analysis, interpretation, and evaluation of religious responses to the world of human experience. Topics include the concern of religion with reason, order and pattern, moral insight, and art, and the context of the problems for which religion proposes solutions. Some attention is given to the history of the subject. Offered every year.

3 cr.

PH 316 Philosophy and Climate Change

Prerequisite: Junior standing. In this course we will evaluate the scientific evidence for the claim that greenhouse gases are increasing global temperatures, and critically analyze some of the philosophical, economic, and political issues that arise given the possibility of anthropogenic global warming (AGW). Topics include probable consequences and effects of global warming, legitimating appeals to expertise and authority, the concepts of risk, uncertainty, and probability, rational decision-making under conditions of uncertainty, the precautionary principle, cost/benefit analyses of inaction, mitigation (prevention), and adaptation, atmospheric justice, causal and moral responsibility, ethical obligations and duties, and rights.

3 cr.

PH 320 Western Religions

Prerequisite: Sophomore standing. This is an examination of the beliefs, rituals, and histories of the major religions of Europe, the United States, and the Middle East. Beginning with an overview of religion in the ancient Near East,

Greece, and Rome, the course concentrates on the development of Judaism, Christianity, and Islam. Offered every fall.

3 cr.

PH 321 Eastern Religions

Prerequisite: Junior standing. This is an examination of the beliefs, rituals, and histories of the major religions of Asia. Particular attention is given to the development of Hinduism, Buddhism, Confucianism, and Taoism. Offered every spring.

3 cr.

PH 333-334 Independent Study in Philosophy

See "Independent Study" on p. 30.

1-3 cr.

PH 340 Ancient and Medieval Philosophy

Prerequisite: Junior standing. This course introduces students to some of the major figures and schools in ancient and medieval philosophy, including Socrates, Plato, Aristotle, Stoicism, Epicureanism, Augustine, and Aquinas. Topics include metaphysics, epistemology, and ethics. Offered every other year.

3 cr.

PH 341 Modern and Contemporary Philosophy

Prerequisite: Junior standing. This course introduces students to some of the major figures and schools in modern and contemporary philosophy, and may include such giants as Descartes, Locke, Hume, Kant, Mill, Hegel, Nietzsche, and Russell. Topics include metaphysics, epistemology, and ethics. Offered every other year.

3 cr.

PH 390 Special Topics in Philosophy

Prerequisite: Junior standing or permission of the instructor. Topics offered depend upon student interests as well as particular interests of instructors. The course is offered as often as faculty time and student interest permit. Recent topics have included "Philosophy of Mind," "Philosophy of Love," and "Aesthetics." The course may be repeated for credit if topic differs.

1-3 cr.

PH 480-481 Internship in Philosophy

See "Internships" on p. 31.

3 cr.

PHYS Physics

(College of Arts and Sciences)

PHYS 101 Elements of Physics

This is a conceptual, inquiry based introductory survey of physics. It is designed to acquaint the student with typical qualitative reasoning and quantitative methods as encountered in the physical sciences. All subfields of physics will be explored. Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

PHYS 103 Elementary Physics I

This is an elementary non-calculus based course for general students. Kinematic motion, Newton's laws, conservation laws, rotational motion, fluid behavior, and wave motion are discussed. Two class hours, three-hour lab

3 cr. Laboratory fee \$50.

PHYS 104 Elementary Physics II

Prerequisite: PHYS 103 or equivalent. This is a continuation of PHYS 103 covering electricity and magnetism, optics, and atomic physics. Two class hours, three-hour lab.

3 cr. Laboratory fee \$50.

PHYS 105 Basic Physics

Prerequisite: Open to Elementary Education majors only. This is a course for students in preparation for elementary school teaching. It covers the content knowledge associated with and the methods used in science in the context of a inquiry-based introductory course in basic physical sciences. The student is expected to acquire knowledge of the basic laws of physics, and apply them also to other sciences like astronomy, meteorology, and geology. Two class hours, three-hour lab.

3 cr.

PHYS 123 Physics of the Life Sciences 1

Prerequisite: MATH 123. This course is a calculus-based introduction to the fundamental principles of mechanics, thermodynamics, and some nuclear physics covering applications to chemistry, biology, and the life sciences. Emphasis is placed upon problem solving, deduction of solutions from first principles, and simple model building. Students gain an understanding of Kinematics, statics, energy, and momentum, Newton's laws, fluid motion, temperature, heat and thermodynamic laws, and nuclear physics as relevant to medical applications. Three lecture hours, one three-hour lab.

4 cr.

PHYS 124 Physics of the Life Sciences 2

Prerequisite: PHYS 123. This course is a calculus-based introduction to the

fundamental principles of electricity and magnetism, geometric and wave optics, and modern physics covering applications to chemistry, biology and the life sciences. Emphasis is placed upon problem solving, deduction of solutions from first principles and simple model building. Students gain an understanding of electric forces, potentials and currents, electromagnetic induction and light, geometric and wave optics for sound, light and matter, and modern ideas relating to the structure of matter. Three lecture hours, one three-hour lab.

4 cr.

PHYS 133 Mechanics

Prerequisite: MATH 123, 124, 133, or concurrently. One unit of secondary school physics is recommended. This is an introductory course dealing with Newton's laws of motion and their applications. Linear and rotational kinematics and dynamics are presented with particular emphasis on the laws of conservation of linear momentum, angular momentum, and energy. Mechanical oscillations are discussed. Three class hours, three-hour lab.

4 cr. Laboratory fee \$50.

PHYS 134 Electricity and Magnetism

Prerequisite: PHYS 133; MATH 123, 124, 132, or 133. This course is the study of electrostatics, electric and magnetic fields, DC circuits, electrical measurements, electromagnetism, electrical and magnetic properties of matter, and AC circuits. Three class hours, three-hour lab.

4 cr. Laboratory fee \$50.

PHYS 151 General Astronomy (Formerly PHYS 113)

Prerequisite: BIO 101, CHEM 101, CHEM 105, PHYS 101, GEOL 101, or METR 101. This is an introductory course designed to acquaint students with an elementary description, in both qualitative and quantitative terms, of the solar system and the behavior and characteristics of the stars and galaxies. (NSP)

3 cr.

PHYS 152 Energy and Mankind

Prerequisite: PHYS 101, METR 101, CHEM 101, CHEM 105, GEOL 101, or BIO 101. This course acquaints students with various sources of energy available to mankind. We will follow the various kinds of energy from the source to the consumer. We will consider the technical aspects of energy generation and distribution, the environmental and social consequences

of use, future potential to benefit mankind, and the fundamental role energy plays in our society. Examples of energy sources to be investigated are nuclear, solar, hydroelectric, geothermal tidal, fossil fuel, wind, and magneto-hydrodynamics. (NSP)

3 cr.

PHYS 153 Space Exploration

Prerequisite: PHYS 101, PHYS 103, PHYS 123, PHYS 133, CHEM 101, CHEM 105, BIO 101, METR 101, or GEOL 101. The goal of this natural science perspective course is to introduce students to the basic principles, issues, and science goals in space exploration, including the history and development of the space program, with particular reference to manned versus unmanned space exploration, spacecraft design, launch and navigation, imaging and remote sensing. Public perception of space science and analysis of the costs, risks and benefits of space exploration will be discussed, including reference to ethical and legal implications of topics such as the use of radioisotope fuel sources, 'space junk', and mining rights in space. Basic concepts from physics and astronomy will be covered as needed. (NSP)

3 cr.

PHYS 154 Oceans

Prerequisites: PHYS 101, PHYS 103, PHYS 123, PHYS 133, CHEM 101, CHEM 105, BIO 101, METR 101, or GEOL 101. The goal of this natural science perspective course is to provide students with a focus for better understanding and appreciating the oceans as a key part of the overall Earth environment. Students will gain background knowledge useful for evaluating future societal issues including global climate changes and pollution. Scientific information from geology, chemistry, physics, and biology will be incorporated to illustrate how each of these disciplines relates to the ocean. Topics covered in this course will include plate tectonics and the ocean floor, chemical properties of seawater, ocean circulation, waves and water dynamics, tides, ocean ecosystems, and marine life. (NSP)

3cr.

PHYS 155 Meteorology

Prerequisite: PHYS 101, CHEM 101, CHEM 105, GEOL 101, or BIO 101. This is an introductory course in meteorology for the nontechnical student. Topics include the earth-sun system, the earth's atmosphere, the earth's heat budget, weather measurements, clouds, horizontal air

movement, stability, fronts, short-term weather forecasting, and climate.(NSP)

3 cr.

PHYS 190 Special Topics in Physics

Topics in physics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PHYS 290 Special Topics in Physics

Prerequisite: Sophomore standing. Topics in physics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PHYS 301 Optics

Prerequisites: PHYS 124 or PHYS 134 and junior standing. This course is designed to provide juniors (and seniors) in engineering and the sciences with a solid foundation in optics and its applications. Specific topics covered are the theory and application of geometrical optics, fiber optics, optical instrumentation, electromagnetic waves, interference, diffraction, polarization, photon theory of light, and the basic principles and applications of lasers. Laboratory activities are used throughout the course to explore and emphasize important concepts.

3cr.

PHYS 333-334 Independent Study in Physics

See "Independent Study" on p. 30.

1-3 cr. *Laboratory fee may be required.*

PHYS 390 Special Topics

Prerequisite: Junior standing. Topics in physics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PHYS 440 Undergraduate Research

Prerequisite: Permission of the Department, approval of the dean. See "Undergraduate Research" on p. 32. Students who show an interest and aptitude for independent and creative work may engage in undergraduate research. Students are expected to write a report based on this work. Class hours by arrangement.

1-3 cr. *Laboratory fee.*

POSC Political Science

(College of Arts and Sciences)

POSC 101 Introduction to Contemporary Global Issues

The course examines numerous social, cultural, economic, and political issue areas from the vantage points of global community and global citizenship. Areas such as the regulation of business, the spread of technology, environmental pollution, health, poverty, crime, human rights, immigration, education, and democracy as well as war and peace are analyzed within the context of globalization. This course is equivalent to INST 101.

3 cr.

POSC 102 American National Government

This course is an introduction to national-level politics in the United States that emphasizes learning concepts and tools of analysis. Students will study the basic structure of the U.S. Constitution and the system of government that it establishes. This will include an examination of federalism, government institutions, and themes associated with citizen participation. Emphasis will also be placed on analyzing current political events.

3 cr.

POSC 190 Special Topics in Political Science

Topics in political science that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

POSC 201 Comparative Politics

Prerequisite: POSC 101 or INST 101 or POSC 102 or sophomore standing. This is an introduction to basic concepts of comparative political analysis. An appreciation for the diversity of political systems across the world is emphasized through case studies taken from Europe, Latin America, Asia, and Africa.

3 cr.

POSC 203 International Relations

Prerequisite: POSC 101 or INST 101 or POSC 102 or sophomore standing. This is an introduction to the elements essential for analyzing and understanding international behavior, organization, diplomacy, politics, law, and the multistate system.

3 cr.

POSC 205 Public Administration

Prerequisite: POSC 101 or INST 101 or POSC 102 or sophomore standing. This is

an introduction to public administration both as a field of study and in its practical applications in government. Areas of study include bureaucratic organization, budgeting, and public management. Problems of public service delivery are explored in relation to the contemporary American political scene.

3 cr.

POSC 207 Western Political Thought

Prerequisite: POSC 101, or INST 101, POSC 102, three credit hours of European history or sophomore standing. A survey of the great political philosophers including Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Hegel, Marx, and modern political writers.

3 cr.

POSC 209 American Political Thought

Prerequisite: POSC 102. This is a study of American political thinkers from the colonial period to the 20th century.

3 cr.

POSC 210 State Politics in America

Prerequisite: POSC 101 or INST 101 or POSC 102 or sophomore standing. This is a general survey of politics in state and local government. Topics given special consideration include the power of governors and mayors, variations in state/local legislative assemblies, budgeting and taxation issues, intergovernmental relations, citizen ballot initiatives, and policy issues including education, criminal justice, the environment, transportation, and public welfare.

3 cr.

POSC 212 Political Analysis

Prerequisite: POSC 102 and sophomore standing. This course will introduce students to the ways in which scholars try to systematically describe and explain political phenomena. How is the study of politics a science? How do political scientists develop hypotheses and test them in such areas as citizen participation, the effects of news media and campaign ads on political attitudes, and the behavior of legislators, governors, and presidents in policy-making? The course will cover the elements of research design as well as survey, experimental, and qualitative approaches to the study of politics. Students also will learn how to analyze data using descriptive statistics, t-tests, correlations, and multiple regression.

3 cr.

POSC 218 Public Policy in America

Prerequisite: POSC 102. This is an examination in the setting of American politics of the process surrounding public decision-making and implementation. Attention is devoted to specific policy issues (environment, healthcare, education, etc.) and the way in which these are addressed in the public sector by interest groups, bureaucrats, and elected politicians.

3 cr.

POSC 290 Special Topics in Political Science

Topics in political science that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

POSC 310 Politics of Developing Societies

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This is a study of the developing societies of the world in the context of rapidly changing socioeconomic conditions and competing political ideologies. Objectives center on a consideration of the cyclical dynamics of democracy and authoritarianism, the rise of revolutionary pressures, and the role of the international economy in shaping domestic politics.

3 cr.

POSC 312 Politics of Ethnic Conflict: Africa

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This is a study of the modern state in Africa, tracing it from colonial origins to the present with a focus on challenges of plural ethnic societies. Thematic content reflects the comparative influence of authoritarianism, and economic underdevelopment shared by all of these societies.

3 cr.

POSC 316 Politics of Europe

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This is an analysis of the governmental and party structures of Great Britain, France, Germany, and Russia with comparisons to the United States. Special attention paid to European Union institutions.

3 cr.

POSC 318 Politics of The Middle East

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This is a study of the Middle East and North Africa in terms of the shared traditions of Arabic and Islamic culture, authoritarianism, and foreign intervention. Specific issues discussed include

the Palestinian-Israeli conflict, the Persian Gulf, Islamic fundamentalism, terrorism, and the impact of oil production.

3 cr.

POSC 321 The U.S. Congress

Prerequisite: POSC 102 and junior standing. This course introduces the world of legislative politics on Capitol Hill, including the people who serve there, congressional organization and procedure, Congress's relationship to other institutions like the President and the courts, and its struggle to solve, while reflecting, the nation's most difficult problems. Students who have successfully completed POSC 320 cannot receive credit for this course.

3 cr.

POSC 322 The U.S. Presidency

Prerequisite: POSC 102 and junior standing. This course examines the history of the Presidency, but the focus is on the office in its current form. Topics include presidential management of the media and public opinion, decision-making in the White House and the President's interaction with other governmental institutions.

3 cr.

POSC 324 Parties and Elections

Prerequisite: POSC 102 and junior standing. This is a study of the electoral process including the roles of candidates, parties, and political managers. Course exercises relate to current campaigns and elections.

3 cr.

POSC 325 Constitutional Law

Prerequisite: POSC 102 and junior standing. This is a study of constitutional principles as decided by the U.S. Supreme Court. Emphasis is on the Court's roles as arbiter of federalism and separation of powers and interpreter of the Bill of Rights and the Civil War Amendments.

3 cr.

POSC 326 Civil Liberties

Prerequisite: POSC 102 and junior standing. This is a further study of constitutional law focusing on the First Amendment to the U.S. Constitution (Freedom of Speech, Press, and Religion). A secondary focus is on civil rights, affirmative action, and reproductive rights cases.

3 cr.

POSC 333-334 Independent Study in Government

See "Independent Study" on p. 30.

1-3 cr.

POSC 338 Challenges in Local Government Management

Prerequisite: POSC 102 and junior standing. This is a detailed study of the tasks and responsibilities of public administrators and managers in the political context of state and local government. Emphasis is given to the practical application of administrative decision-making, personnel management, relations with elected officials, and improving service delivery.

3 cr.

POSC 340 International Law and Organization

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This is analysis of international law and organization in the 20th century. Special attention is paid to landmark cases and principles as well as to the structure and processes of the United Nations, European Community, and other experiments in international organization.

3 cr.

POSC 342 Environmental Politics

Prerequisite: POSC 102 and junior standing. This is an examination of how political institutions have addressed the issues of environmental quality, waste management, clean air, and energy policy. The focus of the course will be on environmental politics in the United States.

3 cr.

POSC 344 Comparative Legal Systems

Prerequisites: POSC 201 and junior standing or permission of the instructor. This course will review the major systems now operative on each continent and examine and compare the basic principles of each. It will consider tribal and communal approaches to conflict resolution as well as national legal systems.

3 cr.

POSC 350 American Foreign Policy

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This is an analysis of American foreign relations. The emphasis is on the formulation and consequences of foreign policy as well as the role of diplomacy abroad and in the United Nations.

3 cr.

POSC 355 Comparative Foreign Policies

Prerequisite: POSC 101 or INST 101 or POSC 102 and junior standing. This course is a comparison and contrast of the decision-making processes and foreign policy institutions of the major powers and selected

other states. Emphasis is on understanding contemporary developments in light of the watershed political changes in Europe after the fall of the Berlin Wall.

3 cr.

POSC 390 Special Topics in Political Science

Prerequisite: POSC 101 or POSC 102 and junior standing. Topics offered depend upon student interest as well as particular interests of instructors. The course is offered as often as faculty time and student interest permit. Recent topics have included "Ethnic and Minority Politics," "Politics and Religion," and "Liberalism versus Conservatism." May be repeated for credit if topic differs.

1-3 cr.

POSC 480-481 Internships in Political Science

See "Internships" on p. 31.

1-3 cr.

POSC 490 Seminar in Political Science

Prerequisite: Senior standing and 15 credit hours of political science or permission of instructor. This is an exploration of selected topics in political science with an emphasis on developing research and analytical skills. These skills are incorporated into a research project on a topic selected by the student. This course may be repeated if the topic differs. All senior political science majors are required to enroll in this course.

3 cr.

PSY Psychology

(College of Arts and Sciences)

PSY 101 Introduction to Psychology

This is a survey of the primary topics of psychology including its historical evolution, aims, and methods. Topics include the physiological bases of behavior, social determinants, and psychology's applications in various fields of human activity.

3 cr.

PSY 150/151 Introduction to Physiological Psychology Research

Prerequisite: Permission of the chair. In this course the student will become familiar with basic laboratory techniques, animal care and handling, and research conducted in the laboratory.

1 cr. each course

PSY 190 Special Topics in Psychology

Topics in psychology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PSY 201 Developmental Psychology (Formerly PSY 211)

Prerequisite: PSY 101. This is a study of behavior changes from infancy through adulthood. Topics examined include prenatal development and the development of motor, perceptual, social, emotional, and cognitive behavior. The interaction of genetic, physiological, and environmental variables at each stage is considered. Topics of contemporary interest such as developmental disabilities, parenting, and education are briefly considered.

3 cr.

PSY 207 Statistics for the Behavioral Sciences

Prerequisite: MATH 100 or higher. This is an introduction to the descriptive and inferential techniques for presenting, analyzing, and interpreting data gathered in the social sciences. Topics include correlation and regression; sampling and sampling distributions; hypothesis testing; and tests of significance, including t tests, ANOVA, effect size, and SPSS.

3 cr.

PSY 212 Adolescent Development

Prerequisite: PSY 201 or concurrently. This course explores the adolescent experience through the examination of a variety of theories that look at physical, emotional, and intellectual development, and also the domains of family life, peer relationships, schooling, community, and cross-cultural experience.

3 cr.

PSY 214 Social Psychology (Formerly PSY 314)

Prerequisite: PSY 101 and PSY 201 or concurrently. This is a study of the individual in society including interactions and relationships with group members. The emphasis is on sociocultural factors affecting behavior and their effects on motivation, beliefs, prejudices, opinions, interpersonal perceptions, verbal, and non-verbal communication.

3 cr.

PSY 216 Gender Issues in Psychology

Prerequisite: PSY 101. This class will examine the effect of gender on our everyday functioning by critically discussing and analyzing readings

on gender issues in everyday life. Topics include inequality, eating disorders, stereotypes and stigma in the media, women's illnesses, and violence against women.

3 cr.

PSY 218 Psychology in the Media

Prerequisites: PSY 101. This course will examine some central psychological concepts that are represented in the movies, television, and the popular press, and compare them to empirical findings in the psychological literature with the goal of teaching students to become critical consumers of media information. Topics covered will include development, psychopathology, relationships, discrimination, stress, memory, and learning.

3 cr.

PSY 220 Health Psychology

Prerequisite: PSY 101 and PSY 201 or permission of the chair. This course will explore the relationship between psychological factors and physical and mental health illness. Included will be discussions of stress reactivity, psychoneuroimmunology, the role of cognitive behavior, stress hardiness, and prevention. Students will also learn and practice a variety of intervention protocols, including the relaxation response.

3 cr.

PSY 290 Special Topics

Topics in psychology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PSY 301 Introduction to Interviewing

Prerequisite: PSY 101 and junior standing. This is an overview of the techniques of interviewing. The course is intended to familiarize students with interviewing skills in a wide range of business and human service situations. Topics include theoretical orientations, ethical issues, and community applications.

3 cr.

PSY 302 Organizational Psychology (Formerly PSY 204)

Prerequisite: PSY 101 and junior standing. This is a study of the behavior of individuals within complex social systems. The focus is upon groups and their responses to various organizational structures. Concerns of the industrial psychologist, recruitment, selection, training, and incentives are also treated.

3 cr.

PSY 304 Educational Psychology

Prerequisite: PSY 101 and junior standing. This is a psychological analysis of the educational process with special attention to the nature of learning and the classroom environment. Topics examined include cognitive and emotional development, learning theory, social adjustment, as well as current educational issues affecting learning and development.

3 cr.

PSY 305 Psychology of Women

Prerequisite: PSY 101 and junior standing. This is an examination of the social, cultural, political, and biological influences on female development, attitudes, relationships, and other behavior. The course also considers the cultural and historical significance and validity of gender expectations in the development of women.

3 cr.

PSY 307 Psychological Assessment

Prerequisite: PSY 101 and PSY 207 or BIS 220 or the equivalent. This course considers the application of the basic principles associated with psychological tests and assessment measures as a systematic means of sampling, describing, and understanding individual behavior. Tests of ability, achievement, aptitude, and personality are presented along with the importance of situating test results within a broader ecological framework. Additional topics include historical considerations, continuing controversies, collection and evaluation of observational data, basic principles of test construction, and appropriate test selection.

3 cr.

PSY 309 Research Methods

Prerequisite: PSY 101 and PSY 207 or permission of the chair. This is a study of the methodology of psychological research from the conception of a hypothesis to the publication of the results. Attention is given to the advantages and limitations of various research designs, the ethical guidelines of research, and the writing style requirements (APA) for psychology papers.

3 cr.

PSY 310 Research Methods II

Prerequisite: PSY 309. This course is a continuation of PSY 309. Students undertake a critical review of a research area of their choice and design an original research proposal based on their findings and ethical principles of the American Psychological Association. The proposals are presented as papers written

in the style of the American Psychological Association and as posters.

3 cr.

PSY 311 Child Behavior Management: Theory and Practice

Prerequisite: PSY 201 and PSY 313 or permission of the chair. This is an examination of the basic principles of behavior management with children. Emphasis is on the practical application of learning principles and communication theory with the goal of developing psychologically healthy relationships between parents, or other caregivers, teachers, and children. Topics include how to communicate effectively with a child, how to reward appropriate behavior, how to use token systems, time-out, and other strategies for dealing with disruptive or other inappropriate behavior in the family, school setting, or clinic.

3 cr.

PSY 313 Learning

Prerequisite: PSY 101 and PSY 201 or permission of the chair. This is an examination of the theoretical principles of operant and respondent conditioning using human and comparative studies from laboratory, educational, and therapeutic settings.

3 cr.

PSY 315 Cultural Psychology

Prerequisite: PSY 101 and junior standing. This is a culture sensitive approach to the development of individuals and groups in various cultural settings. The emphasis is on cultural diversity and its influence upon various psychological processes at both the individual and collective levels.

3 cr.

PSY 317 Psychology of the Exceptional Person

Prerequisite: PSY 101 and junior standing. This is a survey of the unique needs and problems of exceptional people including those who have mental retardation, learning disabilities, autism, giftedness, sensory handicaps, cultural disadvantages, and emotional disturbance, as well as those who belong to multiple categories of exceptionality. The course extends beyond identification criteria and treatment and considers these individuals as they function in, influence, and are influenced by their families, schools, and larger cultural contexts.

3 cr.

PSY 319 Forensic Psychology

Prerequisite: PSY 101 and junior standing. In this course, principles and theories of psychology as they apply to the civil and criminal justice systems will be studied. Topics of investigation will include: role and responsibilities of forensic psychologists, criminal profiling, lie detection, police interrogation and confession, insanity, domestic violence, sexual abuse, the death penalty, and public policy.

3 cr.

PSY 321 Sports Psychology

Prerequisite: PSY 101 and junior standing. This course focuses on psychological theories and interventions used to research and enhance sports performances, the social psychological aspects of sports, and the psychological effects of participating in sports and exercise programs.

3 cr.

PSY 322 School Psychology

Prerequisite: PSY 101 and PSY 201 or permission of the chair. This course is designed to introduce students to the field of school psychology. Students will gain an understanding of the various roles and functions of school psychologists, as well as changes and challenges in school psychology training and practice. Other topics include the history of the field, role of professional organizations, multicultural assessment in the schools, and ethics and law for school psychologists.

3 cr.

PSY 323 Applied Behavior Analysis

Prerequisite: PSY 313. This is an application of the principles of learning theory to behavior change with specialized populations and a variety of behavior disorders. This course includes a number of practicum exercises, an individualized self-adjustment project and paper, and several class presentations.

3 cr.

PSY 324 Drugs and Behavior

Prerequisite: Nine credits in Psychology, NSCI 212, or permission of the chair. This is a course in behavioral pharmacology with an emphasis on examining the pharmacokinetics and behavioral effects of recreational and prescribed psychoactive drugs. This course includes a number of laboratory exercises. Students will be required to prepare an APA formatted paper based on their experimental results.

3 cr.

PSY 325 Teaching Individuals With Developmental Delays

Prerequisite: PSY 313. This course applies the science of Behavior Analysis to teaching individuals with developmental delays, in particular, Autism Spectrum Disorders. Students will learn the diagnostic criteria and various manifestations of these disorders and the impact of these disorders on the family and community. Students will observe and conduct discrete trial teaching for a variety of basic programs. Students will learn about incidental teaching and will create lessons plans to teach and/or generalize skills. Students will also collect and analyze a variety of behavioral data.

3 cr.

PSY 326 Abnormal Psychology (Formerly PSY 306)

Prerequisite: PSY 101 and junior standing. The concept of abnormality is considered from a perspective that views the contribution of both constitutional factors and life experiences to the manifestation of behavioral disorders. Major categories of disorders, relevant research findings, various theoretical orientations, and treatment options are presented. Within these topics, attention is paid to the importance of such forces as culture, race, ethnicity, gender, age, and socioeconomic status as they relate to our understanding of normal and abnormal development.

3 cr.

PSY 327 The Psychology of Tolerance, Social Justice and Hate Crimes

Prerequisite: Junior standing. This course is designed for students who are interested in social justice and multi-cultural issues, especially those issues that foster and nurture tolerance and combat the culture of violence and hatred that can permeate society.

3 cr.

PSY 328 Childhood Disorders and Interventions

Prerequisite: PSY 201 and PSY 313. This course is designed to familiarize students with contemporary research and professional issues associated with the assessment and treatment of clinical disorders among children and adolescents (e.g., pediatric feeding disorders, conduct disorders, depression, anxiety, and substance abuse). The target audience will include students interested in graduate training or careers that may involve clinical research, child psychology, or the

implementation of evidence-based practices with children and adolescents.

3 cr.

PSY 329 The Psychology of Language

Prerequisite: PSY 101 and PSY 201 or permission of the chair. This course will examine the role of language and reading in human behavior. Students will learn about the structural aspects of language, including brain structures responsible for language and reading, as well as how humans interpret, remember, and utilize language to engage in everyday behavior. Topics include reading and language development and utilization, as well as why we sometimes have problems with these skills.

3 cr.

PSY 333-334 Independent Study in Psychology

See "Independent Study" on p. 30.

1-3 cr.

PSY 342 Analysis of Behavior: Principles and Classroom Applications

Prerequisite: Enrollment in New England Center for Children (NECC) program. This is an introduction to behavior modification and operant techniques, including clarification of more commonly used terms, with specific reference to application in the classroom. An overview includes the procedures and practices that have been successful in schools, communities, and work settings. Field work is required. Course available only to students enrolled in the cooperative program at the New England Center for Children.

4 cr.

PSY 346 Applied Programming I

Prerequisite: Enrollment in NECC program. This course allows students to design, test, and evaluate instructional programs for the teaching of specific subject matter for remedial application to behavior problems and to test instructional theory. Supervision is provided through a weekly programming research and data seminar in collaboration with the student's advisor. Course available only to students enrolled in the cooperative program at the New England Center for Children.

4 cr.

PSY 348 Systematic Inquiry in Applied Research

Prerequisite: Enrollment in NECC program. This course requires each student to collect a comprehensive bibliography on a significant topic in applied behavioral research, and

to complete a thorough review via written and oral presentations. It emphasizes the integration and analysis of experimental findings and theoretical foundations of the research area, the critical evaluation of current research, and the identification of potentially fruitful future work. Course available only to students enrolled in the cooperative program at the New England Center for Children.

4 cr.

PSY 352 Advanced ABA Research: Designing Healthy Environments for Young Children

Prerequisite: PSY 309 and PSY 313 or permission of chair. This course will involve students in the implementation and evaluation of evidence-based practices as they work with local teachers in developing academically and socially significant behavior of young children in local schools, culminating in a professional poster or manuscript describing a scientifically-sound behavioral intervention.

4 cr.

PSY 353 Advanced ABA Research: Designing Healthy Environments for Young Children II

Prerequisite: PSY 352 or permission of chair. This course will involve students in the implementation and evaluation of evidence-based practices as they work with local teachers in developing academically and socially significant behavior of young children in local schools, culminating in a professional poster or manuscript describing a scientifically-sound behavioral intervention.

4 cr.

PSY 354 Advanced ABA Research: Topics in Early Intervention and Disabilities

Prerequisite: PSY 309 and PSY 313 or permission of the chair. This course will involve students in the implementation and evaluation of evidence-based practices as they work with local teachers to solve language and literacy problems with young children in area schools, culminating in a professional poster or manuscript describing a scientifically-sound behavioral intervention.

4 cr.

PSY 355 Advanced ABA Research: Topics in Early Intervention and Disabilities II

Prerequisite: PSY 354 or permission of the chair. This course will involve students in the implementation and evaluation of evidence-based practices as they work with local teachers to solve language and literacy problems with young children in area schools, culminating in

a professional poster or manuscript describing a scientifically-sound behavioral intervention.
4 cr.

PSY 356 Advanced Social Psychology Research

Prerequisite: PSY 214 and PSY 309 or permission of the chair. This course will further expose students to theory and research in social psychology. A significant component of this course will be exposure to and participation in all aspects of the social psychological research process, culminating in an ADA style research proposal, presentation, or poster. Topics include, but are not limited to: stereotype threat, prejudice and discrimination, attribution theory, and social-cognitive models of behavior. (e.g., theory of planned behavior, health belief model, etc.)

4 cr.

PSY 358 Advanced Cognitive Psychology Research

(Formerly PSY 413)

Prerequisite: PSY 309 and PSY 313 or permission of the chair. This is an advanced examination of the basic research and theories in learning, human memory and cognition and their applications to human behavior, culminating in an ADA style research proposal, presentation, or poster. Topics include operant and respondent conditioning, memory, cognitive theory, conceptual behavior, and biological influences on learning, memory, and cognition.

4 cr.

PSY 390 Special Topics

Topics in psychology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

PSY 414 Conditioning and Learning Lab

Prerequisite: PSY 313. The basic principles of operant conditioning are demonstrated using standard operant conditioning equipment with rats covering unconditioned and conditioned reinforcement, extinction, shaping, schedules of reinforcement, discrimination training, and behavior chaining. The care and ethical treatment of laboratory animals and the extension of these principles to the behavior of organisms outside the laboratory are covered. Students will be required to prepare an APA formatted paper based on their experimental results.

3 cr.

PSY 416 Counseling Skills

Prerequisite: Senior standing in Psychology or permission of the chair. This is a survey of personality and counseling theory and the development of counseling skills. Through the extensive use of modeling, role playing, and video playback, students learn the skills of counseling. The emphasis is on the integration of theories, skills, and practice of counseling. This is a writing intensive course in which students will prepare weekly reaction papers on each of the major personality theories of counseling and psychotherapy covered.

3 cr.

PSY 418 Behavioral Counseling Methods

Prerequisite: PSY 313 and PSY 416 or permission of the chair. This is a survey of current, empirically supported methods of behavioral and cognitive-behavioral counseling. The emphasis is on helping clients change their behavior. Case materials include examples from a wide range of settings and client characteristics. Students will be required to prepare an APA formatted paper based on an extensive literature review.

3 cr.

PSY 420 History of Psychology and Personality Theory

Prerequisite: Senior psychology standing or permission of the chair. This capstone course is an examination of the history of psychology and personality theory that includes major philosophical and scientific influences such as Darwin, Wundt, Freud, Jung, Rogers, James, Skinner, and systems of psychology such as structuralism, functionalism, and behaviorism. The course traces philosophical concepts such as rationalism, empiricism, mechanism, dualism, and determinism. Students are required to complete an APA style review paper and take the psychology major field test.

3 cr.

PSY 421 Modern Theories of Psychology

Prerequisite: PSY 313 and junior Psychology standing or permission of the chair. This is an examination of the development of modern behaviorism and cognitive psychology as the two dominant paradigms in modern psychology. Topics include scientific methodology, the role of scientific explanation in psychology, the study of verbal behavior and creativity, and applications of these paradigms to the development of educational, social, and cultural systems.

3 cr.

PSY 440-441 Undergraduate Research

Prerequisite: PSY 309, senior standing, or permission of the chair of Psychology. See "Undergraduate Research" on p. 32.

1-3 cr.

PSY 469 Topics in Clinical Practice I

Prerequisite: Enrollment in NECC program. This course involves working with children with special needs under the mentorship of a faculty advisor. Students study classroom techniques and procedures and write several concept papers or complete a critical review of the literature on a specific topic. Each student is assigned teaching responsibilities under the supervision of a faculty mentor. Students participate in a weekly seminar designed to raise issues and discuss topics relevant to the practicum experience. Course available only to students enrolled in the cooperative program at the New England Center for Children. (Approximately 28 in-class hours plus 462 hours of classroom observation and teaching.)

12 cr.

PSY 470 Topics in Clinical Practice II

Prerequisite: Enrollment in NECC program. This course involves working with children with special needs under the mentorship of a faculty advisor. Students study classroom techniques and procedures and write several concept papers or complete a critical review of the literature on a specific topic. Each student is assigned teaching responsibilities under the supervision of a faculty mentor. Students participate in a weekly seminar designed to raise issues and discuss topics relevant to the practicum experience. Course available only to students enrolled in the cooperative program at the New England Center for Children. (Approximately 28 in-class hours plus 462 hours of classroom observation and teaching.)

12 cr.

PSY 480-481 Internship in Psychology

See "Internships" on p. 31.

1-3 cr.

SL Sign Language

(College of Arts and Sciences)

SL 101 Basic Sign Language, Level I (Formerly COMM 101)

This course is an introduction to American Sign Language, introducing nonsigners to the handshake, palm orientation, location, and

movement of common signs, as well as the linguistic principles of ASL. Offered every fall semester.

3 cr.

SL 203 Intermediate Sign Language, Level II (Formerly COMM 203)

Prerequisite: SL 101. This course focuses on developing fluency in contemporary ASL. Offered every spring semester.

3 cr.

SL 210 Sign Language Level III

This course is designed to expand the sign skills of experienced students by providing instruction in “telling about activities,” “giving directions,” “inside and out” and “pluralization.” These skill sets integrate the phonology and morphology of contemporary ASL, as developed and used within the Deaf culture. The course will focus on this culture and the experiences of members in our local Deaf community. Offered every year.

3 cr.

SO Sociology

(College of Arts and Sciences)

SO 101 Introduction to Sociology

This course is an overview of the three major sociological perspectives, social science research methods, and the processes of socialization. Study of social groups, organizations, and institutions of the family, education, and economy is included. Other topics include social stratification based on class, gender, race and ethnicity, deviance, and social change.

3 cr.

SO 190 Special Topics in Sociology

Topics in sociology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

SO 203 Social Problems

Prerequisite: SO 101. This course is a continuation of SO 101 and covers such issues as perspectives on social problems as well as social problems such as economic inequality, family problems, crime, and environmental problems from a critical constructionist perspective.

3 cr.

SO 211 Sociology of Minority Groups

Prerequisite: SO 101. This is an examination of the relative socioeconomic status of various

social groups and of the relations among them. Selected cross-cultural studies are reviewed, but emphasis is on the United States.

3 cr.

SO 214 Drugs, Society, and The Criminal Justice System

Prerequisite: SO 101 or CJ 101. This is a study of the legal and social background of the pressing problem of drugs and alcohol and their use and abuse in American society.

3 cr.

SO 216 American Culture and the Black Experience

Prerequisite: Six credit hours of psychology and/or sociology. This is a study of the impact of Black people upon American culture. The course traces the historical, psychological, sociological, and anthropological influences of the Black experience on American society. The focus is on the processes of socialization, accommodation, and acculturation.

3 cr.

SO 220 Contemporary American Society

Prerequisite: SO 101 or PSY 101. This course will use current population trends in American society to develop substantial insights into what American society will inevitably become over the next 50 years. The course will examine issues such as the changing workplace, wealth and income, Social Security and retirement, race and minorities, health and wellness, crime and law enforcement, and the changing international demographic landscape. Students will be able to evaluate the effects of a changing demography on all of these areas of American society. This course will provide a valuable background for any student looking to work with people in a business, law enforcement, communications, or government environment.

3 cr.

SO /CJ 235 Domestic Violence

Prerequisite: PSY 101 or SO 101 or CJ 101 or permission of instructor. Domestic violence between adults is studied from an interdisciplinary perspective. The cycle of violence, dominance, and control are among the issues to be covered sociologically and psychologically. The legal perspective includes discussion of proactive arrest policies, restraining orders, and anti-stalking legislation that have emerged across the United States.

3 cr.

SO 290 Special Topics in Sociology

Topics in sociology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

SO/CJ 301 Research Methods

Prerequisite: Junior standing, SO/CJ 300, and CJ 210 or SO 322. This course is an introduction to scientific research in the social sciences. Its primary goals are to provide students with a foundation necessary for conducting quality research and to provide students with skills necessary to analyze and interpret research data. The course highlights the logic of research designs, the relation between experimental and nonexperimental research strategies, and the application of quantitative methods. It provides experience in collecting and analyzing research data, writing, and preparing research reports. This course will discuss and contextualize the concepts and techniques of quantification in social science research, which include descriptive, univariate, parametric, nonparametric, and inferential analyses. Students will learn to use a statistical computer-software package to perform analyses on research data.

4 cr.

SO 302 Industrial and Post-Industrial Society

Prerequisite: SO 101 and any 200 level sociology course. This course focuses on an examination of changes in work in America through a review of industrialization from the early 1800s to the 1970s, and through an examination of research conducted from the early 1970s to present.

3 cr.

SO/CJ 304 Children, Family, and the State

Prerequisite: CJ 101, SO 101, and any 200 level criminal justice course or permission of instructor. This is a critical look at the policy, the theory, and the practice of state intervention into families on behalf of children. The study involves a review of the legal theory underlying child protective services, an explanation of the relevant federal and state laws, an investigation of the various types of state involvement with families, an exploration of the role of social workers and departments of social services, and a practical look into how the legal system deals with families and children. Foster care and child treatment by the system will be explored.

3 cr.

SO 305 The Sociology of Urban Life

Prerequisite: SO 101 and any 200 level sociology course or junior standing. This is an examination of the influence of the city upon social relations, institutional life, and personality development. Attention is given to both American and non-American areas. The greater Springfield area is used as a laboratory for research.

3 cr.

SO/CJ 306 Disability and Mental Health Issues in Criminal Justice

Prerequisite: CJ 101, SO 101, and any criminal justice 200 level course or permission of instructor. This course will explore contemporary issues surrounding criminal justice response to persons having mental, cognitive, and psychiatric disabilities. Changes in the legal code governing patient rights, affirming the right of persons with mental illness to live in the community, in addition to deinstitutionalization in the 1960s set the stage for increased criminal justice involvement. Approximately 54 million Americans live with a wide variety of physical, cognitive, and emotional disabilities. The Americans with Disabilities Act (1994) entitles people with disabilities to the same services as provided to others. ADA application to criminal justice policy will be addressed.

3 cr.

SO 308 Sociology of the Family

Prerequisite: SO 101 and any 200 level sociology course or junior standing. This is a review of the historical development of the family as the most fundamental institution in society and the source of primary socialization. Topics include traditional and contemporary functions, problems of single-parent families, two-career families, alternative family structures, and current family policies.

3 cr.

SO 309 Social Deviation and Control

Prerequisite: SO 101 or LSOC 101 and any 200 level sociology course or junior standing. This is an analysis of social norm violations and group responses to deviant behavior. Emphasis is on the nature of social norms and rules; styles of social control; sources and varieties of deviant behavior; the development of unconventional ideologies and world views; and the role of deviant subcultures, associations, and organizations.

3 cr.

SO 310 Cultural Anthropology in the 21st Century

Prerequisite: SO 101 and any 200 level sociology course or junior standing. This is an introduction to the academic discipline of anthropology including physical anthropology, anthropological linguistics, archaeology, and cultural anthropology. The emphasis is on the concept of culture, cultural behavior, and cultural dynamics. Cultures are seen, in part, as an ecological adaptation to certain environmental niches. Concepts dealing with cultural relativity are stressed.

3 cr.

SO 322 Social Theory

Prerequisite: SO 101 and junior standing or instructor's permission. This is an in-depth survey of the major sociological theories from the 19th century to the present including the work of Max Weber, Emile Durkheim, Karl Marx, and contemporary American sociology. The course provides an introduction to quantitative methods: questionnaire design, interviewing, data collection, analysis, and presentation.

3 cr.

SO 324 Comparative and Historical Sociology

Prerequisite: SO 101 and junior standing. This course introduces basic analytic tools for describing and comparing macro-level social structures. Particular attention is paid to the distinctive traditions of sociological thinking in Europe and the United States. Students are expected to research and prepare a comparative and historical study of a chosen area of concern: family life, education, deviance, or social policy.

3 cr.

SO 330 Sociology of Communication

Prerequisite: PSY 101 or SO 101 and junior standing. This course focuses on theories of communication as presented in the works of symbolic interactionists and social conflict theorists, such as G.H. Mead and Karl Marx.

3 cr.

SO 333-334 Independent Study in Sociology

See "Independent Study" on p. 30.

1-3 cr.

SO 341 The Sociology of Work

Prerequisite: SO 101 and any 200 level sociology course or junior standing. This course explores the world of work from a practical perspective. Students will prepare themselves for careers of their choosing. They will learn how to

research careers in depth, prepare effective résumés and cover letters, and use sociological methods to develop viable careers for themselves. In addition, the course explores substantive sociological issues in the world of work and helps students develop their skills of analysis, reasoning, and understanding of a fast changing environment.

3 cr.

SO 345 Latino Americans in the U.S.

Prerequisite: Any 200 level SO or CJ or PSY or SW course. Latino Americans in the United States has been developed to familiarize students with the diverse cultural makeup of the various Spanish speaking ethnic groups that embody the U.S. Latino American community. A community which includes "Mexican Americans, Puerto Ricans, Cubans, Central Americans, South Americans and other peoples of Indian and African descent." It is a community, which in this century will have the largest representation of a minority group in the United States.

3 cr.

SO/CJ 349 Multicultural Policing

Prerequisite: SO 101 or CJ 101, and junior standing, or permission of the instructor. This course is designed to familiarize the student with the "theoretical and practical" application of peace keeping in a multicultural setting. Students will explore the issues of "diversity, cultural understanding, and communication" facing the law enforcement community in a multicultural environment. Particular attention will be given to the concept of "cross-cultural law enforcement for diverse communities."

3 cr.

SO 373/SUS 373 Population, Values, and Technology

Prerequisites: SO 101, SUS 101, and junior standing. Students examine the impact of population growth, social inequality, and technology on issues of sustainability. Students are introduced to (1) demography and demographic analysis to interpret social and environmental issues; (2) how social forces influence the emergence and acceptance of new technologies as well as the acceptance and interpretation of "risk"; and (3) the significance of underlying values as they affect the potential for and resistance to social changes necessary for sustainability.

3 cr.

SO 390 Special Topics in Sociology

Topics in sociology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

SO 410 Social Change

Prerequisite: SO 101 and junior or senior standing or instructor's permission. This is a study of the major social and cultural changes occurring in contemporary societies with major emphasis on the United States. Topics include social trends, planned social change and social invention, technological development as a cause of unplanned social change, the transformation of the workplace in industrial and information societies, and social movements.

3 cr.

SO 413 Social Inequality and Justice

Prerequisite: SO 101 and senior standing or LSOC 101 and junior standing. This is a consideration of the causes of institutionalized inequality in social life. Topics include theories of social class and the distribution of social powers and privileges. Special attention is given to caste and class in America and their relationship to the development of civil rights.

3 cr.

SPAN Spanish

(College of Arts and Sciences)

SPAN 101 Elementary Spanish I

This is an introduction to the language including basic pronunciation, simple conversation structure, structural analysis of sentences, and dialogue construction. Included is practice in speaking, listening, and simple reading. Approximately eight hours of laboratory work are required in half-hour periods. Offered every fall.

3 cr.

SPAN 102 Elementary Spanish II

Prerequisite: SPAN 101 or the equivalent. This is a continuation of SPAN 101 at a level of increasing complexity and with some attention to writing the language. Approximately eight hours of laboratory work are required in half-hour periods. Offered every spring.

3 cr.

SPAN 130 Spanish for Criminal Justice

Prerequisite: Not open to students who have completed SPAN 102 or a 200 or 300-level SPAN course or with two or more years of high school Spanish. This is an introduction to the

specialized vocabulary and basic grammatical structures needed by people working in the field of law enforcement. The course provides students with the opportunity to use their linguistic foundation to develop conversational facility in Spanish. Their conversational skills are developed through creating dialogues and presenting original skits centering on probable law enforcement situations. Offered once a year.

3 cr.

SPAN 140 Spanish for Social Services

Prerequisite: Not open to students who have completed SPAN 102 or a 200 or 300-level SPAN course or with two or more years of high school Spanish. The course introduces students to the specialized vocabulary and basic grammatical structures needed by people working in the field of social services. It gives students the opportunity to use their linguistic foundation to develop conversational ability in Spanish. Each lesson in the supplementary text focuses on a situation commonly encountered by social service professionals. Conversational skills are developed through realistic dialogues and original skits and conversations, which introduce the words and expressions that social service professionals need in their daily work. Offered once a year.

3 cr.

SPAN 190 Special Topics in Spanish

Topics in Spanish that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies

1-3 cr.

SPAN 203 Intermediate Spanish I

Prerequisite: SPAN 102 or the equivalent. This is a systematic review of Spanish grammar and sentence structure with study and practice in the more complex structures. The emphasis is on vocabulary building through conversation, reading, and composition aimed at providing an understanding of the culture of Hispanic groups and societies. Offered every fall.

3 cr.

SPAN 204 Intermediate Spanish II

Prerequisite: SPAN 203 or the equivalent. This is a continuation of SPAN 203. Emphasis is on conversational skill through oral and audio-lingual practice. Reading materials are selected to expand the student's oral and reading skills. Offered every spring.

3 cr.

SPAN 290 Special Topics in Spanish

Topics in Spanish that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies
1-3 cr.

SPAN 305 Advanced Conversational Spanish I

Prerequisite: SPAN 204 or the equivalent. This course studies oral aspects of the language: colloquialisms, pronunciation, vocabulary building, and practical use of advanced Spanish. Class discussions; conversations; oral exercises from Spanish texts, newspapers, and magazines; and audio-lingual drills are used to develop fluency in the spoken language. A portion of the course is devoted to techniques in composition and translation. Offered every fall.
3 cr.

SPAN 306 Advanced Conversational Spanish II

Prerequisite: SPAN 305 or permission of the instructor. This is a continuation of SPAN 305 with emphasis on cultural and societal conditions in contemporary Latin America. Offered every other spring.
3 cr.

SPAN 333-334 Independent Study in Spanish

See "Independent Study" on p. 30.
1-3 cr.

SPAN 390 Special Topics in Spanish

Topics in Spanish that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.
1-3 cr.

SPMN Sport Management

(College of Business)

SPMN 250 Managing Sport Organizations

Prerequisite: MAN 101. The course provides an introduction to the field of sport management through an application of significant management principles to sport organizations and the role of the manager in ensuring organizational performance. Key learning outcomes focus on the understanding and recognition of the: history and development of sport management as a profession and discipline; management, legal, financial, and marketing principles; vocabulary and themes of the sport industry; concepts, issues, and management practices unique to sport industries; research skills including data

collection and analysis; and sport career exploration and investigation.
3 cr.

SPMN 333-334 Independent Study in Sport Management

See "Independent Study" on p. 30.
3 cr.

SPMN 355 Sport Facility Planning and Management

Prerequisite: SPMN 250. The course provides an overview of sport facility planning and management. Key learning outcomes focus on understanding managerial issues related to various sport facilities including stadiums and arenas, sport facility planning, design, and construction; sport facility finance; project feasibility; economic impact of sport facilities and events; outsourcing of operational services; application of management principles including budgeting, promotion, public relations, security and risk management, event planning, and game operations.
3 cr.

SPMN 366 Sport Marketing

Prerequisite: MK 200 and SPMN 250. This course compares and applies concepts of mainstream marketing to the sport industries and examines the marketing of sport products and the marketing of mainstream products through sport. Key learning outcomes include the understanding and use of the historical foundations of sport marketing; the application of marketing principles to the specific organizational environments of collegiate and professional sport, special events, sporting goods, and licensed product manufacturing; and facility management.
3 cr.

SPMN 375 Non Profit Board Field Experience I

Prerequisite: Permission of instructor and junior standing in the College of Business. This is the first semester of a two semester course sequence. Students must successfully complete SPMN 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the first semester students will attend board meetings and become oriented to the organization.
1 cr.

SPMN 376 Non Profit Board Field Experience II

Prerequisite: SPMN 375 and Permission of Instructor and junior standing in the College of Business . This is the second semester of a two semester course sequence. Students must successfully complete SPMN 375/376 in order to earn credit towards graduation. The goal of this two semester course is to provide students with the opportunity to gain exposure to the type of decisions made by nonprofit boards of directors. This involves membership on a board of directors as well as hands-on experience as a member of a subcommittee of the board. During the second semester students become involved with a member of the board in a project area.

2 cr.

SPMN 390 Special Topics in Sport Management

This course is a study of advanced topics in sport management, but not carried in the catalogue on a regular basis.

3 cr.

SPMN 420 International Sport Management

Prerequisites: SPMN 250, SPMN 355, and SPMN 366 or permission of instructor. This course provides students with an in depth look at the diverse and expanding professional practice of sport management in an international context. Students will explore international sport from historical, cultural, political, and business perspectives. Emphasis is given to an examination of the Olympic movement as well as to the globalization of professional sport. Current issues related to the management of international sport organizations are examined. Opportunities for employment in international sport organizations are also identified.

3 cr.

SPMN 450 Managing Collegiate/Scholastic Athletic Programs

Prerequisite: SPMN 250 or permission of instructor. This course provides the student with an opportunity to combine classroom instruction with hands-on experience in sport management through a practicum in the University's Athletic Department. The course is designed to allow the student to apply theoretical knowledge to the practice of sport management through a variety of activities and assignments that may include game operations, facility management, compliance, fund raising, shadowing of athletic administrator, budgeting, event coordination, sport marketing, and media relations. Key learning

outcomes focus on effective performance as a member of a sport management team, application of quality management principles to college/university/scholastic sport programs and services, development of professional skills, understanding of practice of sport management, and refinement of career direction.

3 cr.

SPMN 460-461 Advanced Field Experience in Sport Management

Prerequisite: 3.0 overall GPA, instructor permission, and two faculty endorsements. The goal of this course is to provide students with the opportunity to gain extensive hands-on experience in a sport organization. Students are placed in a sport business environment and their work experience is communicated to a faculty sponsor via faculty-student meetings, on-site visits, written assignments, oral presentations, final project, and formal AFE defense. Only students who have demonstrated academic excellence; a high degree of commitment to a career in the sport industry; and the necessary motivation, leadership and managerial skills to undertake the AFE course are eligible for enrollment. The AFE is a six-credit course designed to primarily be taken in the senior year. Concurrent enrollment in SPMN 460 and SPMN 461 is required.

3 cr. each.

SPMN 465 Seminar in Sport Management

Prerequisite: SPMN 250 and SPMN 355. The course examines contemporary issues in sport management. Key learning outcomes focus on understanding and problem-solving applications associated with revenue development models across a variety of sport business life-cycle events; environmental forces shaping policy-making within sport organizations; ownership models and issues; sport governing bodies and regulatory agencies; maximization of sport organization revenue streams; budget analysis; human resource development practices in sport organizations including CORI/SORI checks, salary caps, player development, and volunteer training. Strategies for sport industry career determination and implementation are emphasized.

3 cr.

SPMN 480-481 Internship in Sport Management

See "Internships" on p. 31.

3 cr.

SUS Sustainability

(College of Arts and Sciences)

SUS 101 Introduction to Sustainability

This is the foundation course for the major in Sustainability. Students are introduced to sustainable resources and sustainable communities from the perspective of the individual and the larger population. Topics covered include sustainable agriculture, forestry and land use, biodiversity, alternative energy, transportation planning, housing and community development. Students may fulfill their first Learning Beyond the Classroom requirement by participating in a class project on sustainability.

3 cr.

SUS 220 Computer-aided Modeling and Analysis

Prerequisite: SUS 101 and SUS 236. This is an introductory course in problem identification and solution using computer-aided modeling and model analysis. Elements of the course include becoming familiar with the software the course will use, learning how to formulate a problem statement from identified needs, learning how to identify constraints (especially sustainability constraints) that limit solutions to problems, and learning how to find constrained solutions to a problem statement through computer-aided means. To facilitate understanding how sustainability principles constrain problem solutions, the course will make use of software such as EXCEL, a spreadsheet program, and SolidWorks, a solid-modeling program.

3 cr.

SUS 230/ILP 230 Business and the Global Environment

Prerequisite: Sophomore standing. Sustainability majors are required to take SUS 230. This course focuses on political, cultural, economic, and social elements related to globalization of the business environment and covers a broad spectrum of issues. Learning outcomes are focused on the recognition and understanding of concepts and practices with respect to: the economics of international monetary and banking systems; the nature of regional economic integration; theories of international trade; the organization of global firms; cross-cultural marketing issues; international legal frameworks and trade organizations; and ethics and social responsibility.

3 cr.

SUS 236/ILP 236 Global Warming

Sustainability majors are required to take SUS 236. This course will first address the physical laws and underpinnings of the observed global warming trend. Changes in the atmospheric abundance of greenhouse gases and aerosols and in land surface properties, that alter the energy balance of the climatic system and the preexisting greenhouse effect, will be investigated. Model projections for future climates will be discussed. The investigation of the physical science basis will be followed by an assessment of the observed and projected global and local impacts of the climatic changes and the adaptations and vulnerabilities of natural, social, and economic systems impacted by these changes. Finally the proposed political solutions addressing these threads, (local and global) especially as expressed and outlined in the Assessment Reports of the Intergovernmental Panel on Climate Change (IPCC) a panel under the joint auspices of the United Nations and the World Meteorological Organization will be discussed.

3 cr.

SUS 305 Environmental Assessment

Prerequisites: CHEM 101, SUS 101, and BIO 153. This course in environmental assessment is specifically designed for students in the Sustainability major at Western New England University. The course addresses guidelines and procedures that may be required by federal, state, or local (municipal) agencies having jurisdiction over land use or land development activities in cases where those activities, if unregulated, may have a negative environmental impact. In addition, the course will address current technology (e.g., spatial methods and geographical information systems—GIS) that are used in environmental assessment.

4 cr.

SUS 320 Electrical Power Systems

Prerequisite: SUS 101 and SUS 236. This is an introductory level course in the generation, distribution, and management of electrical energy in the context of sustainability. This course presents the essential components and operating features of the power industry so that those components and features can be used effectively with emerging technologies of energy capture (i.e. solar, wind, geothermal, etc.) and energy management (e.g. the Smart Grid). Upon successful completion of this course, students should have a firm understanding of the structure and components

of an electrical power system and be able to model such systems and determine associated power flows, efficiencies, and energy budgets.
3 cr.

SUS 373/SO 373 Population, Values, and Technology

Prerequisites: SO 101, SUS 101, and junior standing. Students examine the impact of population growth, social inequality, and technology on issues of sustainability. Students are introduced to (1) demography and demographic analysis to interpret social and environmental issues; (2) how social forces influence the emergence and acceptance of new technologies as well as the acceptance and interpretation of “risk;” and (3) the significance of underlying values as they affect the potential for and resistance to social changes necessary for sustainability.

3 cr.

SUS 405 Legal Aspects of Sustainability

Prerequisite: SUS 101 and POSC 342. This course has three central components, all of which are related to its pedagogical mission of providing an intensive yet practical examination of legal and policy approaches to sustainability. The first is to provide a basic understanding of the central features of the American legal system as they relate to the study and practice of environmental law. The second is to provide a basic understanding of how to approach and navigate within the legal system. The third is to understand the major federal environmental laws.

3 cr.

SUS 425 Senior Design Project I

Prerequisites: Graduating senior in Sustainability major and SUS 305 Environmental Assessment. This is the first of two required capstone courses for Sustainability majors designed to prepare students for entry-level positions. Under the supervision of a faculty advisor, each student is assigned to a project team which develops a proposal for a sustainability project. Teams are selected to maximize the interdisciplinary aspect of the sustainability major, drawing students from different concentrations. Students apply acquired skills and communicate the results of their proposal in both oral and written form. Oral reports are presented before an assembly of faculty and students. Students apply sustainability design principles either by working on a project, improving a product, or designing experiments to investigate causes of either an observed phenomenon, or a

problem. In all cases, the project will focus in some way on sustainable resources and/or sustainable communities. The proposal must be inclusive, requiring each team member to demonstrate appropriate skills acquired in their sustainability concentration. Teams that select externally-sponsored projects (business, non-profits, government) have the opportunity of working with an advisor in an actual sustainability environment.

3 cr.

SUS 440 Senior Design Project II

Prerequisites: Graduating senior in Sustainability major and SUS 425. This is the second of two required capstone courses for Sustainability majors that prepares students for entry-level positions. This course is an extension of SUS 425, Senior Design Project I. Under the supervision of a faculty advisor, each team of students implements their proposed sustainability project. Students apply acquired skills and communicate the results of their project in both oral and written form. Students apply sustainability design principles either by working on a project, improving a product, or designing experiments to investigate causes of either an observed phenomenon, or a problem. In all cases, the project will focus in some way on sustainable resources and/or sustainable communities. Teams that select externally-sponsored projects (business, non-profits, government) have the opportunity of working with an advisor in an actual sustainability environment.

3 cr.

SW Social Work

(College of Arts and Sciences)

SW 100 Introduction to Social Work

This is an introduction to the development of the social work profession including its body of knowledge, values, ethics, and skills. Students learn about core practice concepts such as person-in-environment, generalist practice, and systems theory, and they explore the settings where social work practice takes place, problems and issues requiring social work intervention, and social work practice at particular stages of human growth and development. The course addresses the impact of race, class, ethnicity, gender, sexual preference, abilities, and culture on human functioning. An emphasis is placed on helping

students assess their motivation to pursue a career in social work.

3 cr.

SW 190 Special Topics in Social Work

Topics in social work that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

SW 203 Child Welfare

This is a survey of the history and development of children's services. Topics include foster care, adoption, day care, and protective and other services for minors and families; public and private services; policy formulation; the decision-making process for authoritative intervention; foster care placement; permanency planning; and ethical guidelines for practice with children and families.

3 cr.

SW 204 Social Work and Criminal Justice

This course examines the role of social workers in criminal justice settings, such as probation offices, prisons, the courts, and other aspects of the legal system. Social work values and ethics and their integration with criminal justice "host settings" will be discussed. Specific problems addressed by social work within the criminal justice system, such as juvenile delinquency, gangs, domestic violence, and other violent crimes will be reviewed.

3 cr.

SW 216 Human Behavior in the Social Environment

Prerequisite: Six credits in psychology, social work, and/or sociology. This course is a social systems approach to relations among individuals, families, groups, communities, and organizations. Emphases on at-risk populations and diversity throughout the life cycle; the impact of the social environment on behavior; including the relationship of social policy to human behavior and development.

3 cr.

SW 290 Special Topics in Social Work

Topics in social work that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

SW 300: Social Work Pre-Practicum Seminar

Prerequisite: Official acceptance into Social Work program. This is a required upper level social work course. This course assists students in gaining the knowledge, values, and skills necessary to succeed in junior and senior field placements. Students will learn the

expectations for interns in field placements, as well as the application and selection process for senior field placements. Special issues related to functioning in both social work and host agencies as a social work professional will be covered.

1 cr.

SW 301 Social Work Interventive Methods I

Prerequisite: SW 100, SW 216, and junior standing. This is a study of the theoretical framework of generalist social work practice. The focus is on helping to socialize students into the role of the generalist social work practitioner. The course provides an analysis of professional social work values and ethics, methods for dealing with ethical dilemmas, and an introduction to the intervention process including client assessment. Students are required to participate in The Helping Relationship project, which provides the opportunity to integrate course content with field work in an agency setting.

4 cr.

SW 302 Social Work Interventive Methods II

Prerequisite: SW 301 and junior standing. Corequisite: SW 305. Students learn interviewing skills as they are used in social work practice. The course focuses on the application of interviewing skills in direct service, but students also learn how to apply interviewing skills to work with groups, organizations, and communities. Students learn use of self, attending, questioning, active listening, and reflection of feelings skills in the context of intentional interviewing. An emphasis is placed on cultural sensitivity in the interviewing process. Effective interviewing approaches for advocacy, telephone and referral skills, and engaging difficult clients are covered. Students use critical thinking skills to recognize and assess their use of interviewing concepts and their progress as social work interviewers.

3 cr.

SW 303 Social Work Interventive Methods III

Prerequisite: SW 301 and junior standing. Students learn the knowledge, values, and skills of macro level social work practice with communities and organizations. The course applies the social work problem-solving process and social work values and ethics to organizational, community, political, and social problems. Theories of community practice that address problem identification and intervention strategies on a continuum ranging from the local level to large-scale social

change are covered. The course examines the role of the social service organization in the community and the impact of the community and organizational systems on human functioning. The relationship between micro and macro level practice, the social worker's ethical responsibility for promoting social justice, and macro level approaches for advocating for social justice are covered.

3 cr.

SW 305 The Helping Relationship Project

Prerequisite: SW 301. Corequisite: SW 302. The purpose of this field experience, begun during the fall semester in conjunction with SW 301, is to enable students to understand how a helping relationship between a client and a social worker develops. Students will have the opportunity to continue to better develop practice with a variety of clients, and will discuss their work with clients in a weekly seminar.

2 cr.

SW 310 Substance Abuse and the Family

Some background in sociology, psychology, or social work is preferred, but not a prerequisite. Students survey the field of substance abuse prevention, diagnosis, treatment, and policy. The course discusses the myths surrounding substance abuse, identifies who is at most risk, and looks at the progression from substance use to substance addiction. Students learn about the effects of substance abuse in the family and discuss differential interventions and treatment. The course looks at substance abuse policy in the United States, including the effects of the mass media on use.

3 cr.

SW 313 Social Welfare and Social Policy

Prerequisite: SW 100, POSC 102, and junior standing. This is an examination of the structure and policies of social institutions as they relate to social welfare and the profession of social work. Students are introduced to the history, philosophy, and development of social welfare including a close review of American social welfare institutions. The history and ideology of contemporary social welfare programs are reviewed to provide students with a framework for policy analysis and to foster skill in identifying the impact of social policies on human functioning.

3 cr.

SW 314 Field Instruction in Macro Practice

This course, taken concurrently with SW 303, and SW 313, provides students with the opportunity to experientially learn about

social work practice at the macro level. Students spend eight hours per week practicing social work in a community setting under the supervision of a skilled community worker. This experience enables students to integrate knowledge and skills from their social policy and macro methods courses while gaining practice in advocacy, community education, empowerment, and policy analysis. This course is graded on a pass/fail basis.

3 cr.

SW 320 Dynamics of Oppression and Empowerment

This course is an introduction to understanding issues of diversity and social justice in the United States. The course will provide students with a theoretical framework for understanding the dynamics of oppression and allow students to expand their knowledge of specific forms of oppression. In addition the course will help students develop a perspective for culturally sensitive and multi-cultural social work practice, through self-examination of their own multiple identities. Students will also develop an appreciation of the impact of race, ethnicity, class, age, religion, physical and mental abilities, and sexual orientation on the client worker relationship.

3 cr.

SW 321: Empowerment Practice with Underserved Populations

Prerequisite: Junior standing. This is an examination of the impact of oppression on human functioning focusing on teaching students specific practice approaches for empowerment practice with oppressed groups. The course helps students to develop culturally sensitive social work practice skills and an appreciation of the impact of power and difference on the client-worker relationships. Students examine the social worker's ethical role as an advocate for social justice. Specific approaches for helping clients gain access to opportunities for growth are taught from micro and macro perspectives. The course helps students continue to develop culturally sensitive social work practice skills and an appreciation of the impact of power and difference on the client-worker relationship.

3 cr.

SW 383 Women's Issues

This course is designed to give students an understanding of the nature of the difficulties that women bring to social workers. Topics such as incest, rape, eating disorders, alcoholism, woman battering, poverty,

ageism, sexual harassment, and other forms of violence against women are explored from individual, family, and societal systems perspectives. Sociocultural theories of female development are contrasted with traditional theories of personality development. The unique problems of special populations of oppressed women, such as women of color and lesbians, are explored as are issues related to women outside the United States. The course gives students a framework for understanding women's oppression and addresses women's human rights as well as focusing on women's strengths.

3 cr.

SW 390 Special Topics in Social Work

Topics in social work that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

SW 404 Social Work Interventive Methods IV

Prerequisite: SW 301, 302, 303, and senior Social Work standing. This course focuses on social work practice with diverse families and small groups. Students learn family systems theory and its application to the problem-solving process in social work practice. Roles of family practitioners at the BSW level are discussed with an emphasis on family preservation and family skill building programs that provide services to multiproblem families. Students learn social group work theory including types of social work groups, steps in creating a social work group, stages of group development, group dynamics, the roles of the group facilitator and group members, and the benefits of social group work. Diversity issues in social group work are discussed as well as values and ethics specific to social work with groups. Students learn about the use of groups as a modality for client empowerment.

3 cr.

SW 409, 410 Field Instruction in Social Work I

Prerequisite: SW 302, SW 303, and senior Social Work standing. Corequisite: concurrent registration in SW 414. This is an introduction to the practice of social work in an agency setting (240 clock hours). Students have the opportunity as trainees to develop an identity as a social work practitioner by actual socialization within the agency and by beginning participation in the delivery of services under the supervision and guidance of professional personnel. Students are limited

to a total of six credits for SW 409 and SW 410. These courses are graded on a pass/fail basis.
6 cr.

SW 411, 412 Field Instruction in Social Work II

Prerequisite: SW 409, SW 410, and senior Social Work standing. Corequisite: SW 415. Students continue experiential learning through engagement in actual practice (240 clock hours) under the supervision and guidance of professional personnel. The placement experience allows the implementation of theoretical learning and its integration with the demands and constraints of practice. The trainee should develop a sense of competence and self-reliance as a future practitioner in social work. Students are limited to a total of six credits for SW 411 and SW 412. These courses are graded on a pass/fail basis.

6 cr.

SW 414 Seminar in Field Instruction I

Prerequisite: SW 301, SW 302, SW 303, and senior Social Work standing. Corequisite: Concurrent registration in SW 409 and 410. This is a seminar emphasizing the integration of academic knowledge with fieldwork education. The focus is on helping students adjust to their new roles as social work interns. Discussion topics relevant to the knowledge, values, and skills of social work practice are generated by students in their field practice. The seminar emphasizes ethical issues faced by student interns in their field practicum settings as well as cultural competence.

1 cr.

SW 415 Seminar in Field Instruction II

Prerequisite: SW 409, SW 410, and SW 414. Corequisite: Concurrent registration in SW 411 and 412. This is a continuation of the emphasis on the integration of academic knowledge with fieldwork education. Students present problematic cases from the field in a "team conference" setting to enable them to develop critical thinking abilities with cases from a variety of settings. Through a variety of assignments, students continue their socializations as emerging BSW practitioners.

2 cr.

SW 419 Social Work and Research (Formerly SW 319)

Prerequisite: PSY 207 or MATH 120 and senior standing. This course is designed to equip social work majors with a basic understanding of research procedures and analysis so that they will become more sophisticated consumers of professional research and mass

media reporting. The focus is on understanding research procedures related to the social worker's own practice and agency programs. Ethical issues in social work research are addressed.

3 cr.

SW 420: Social Work Research Seminar

Prerequisites: SW 419 and senior standing. This one-credit seminar is designed to support students' year-long research projects. Expanding upon concepts developed in the fall semester course, Social Work and Research, students will gain the basic knowledge and skills required to implement small-scale agency-based research within their field placements. Students will engage in quantitative and/or qualitative data collection and analysis, and will draw conclusions based on a critical examination of their chosen research questions and methodologies. Students will develop reports summarizing the results of their research and prepare poster presentations for their senior reception. In addition to developing their own research reports, students will review and critique the research reports of their peers.

1 cr.

THTR Theatre

(College of Arts and Sciences)

All THTR courses satisfy the aesthetic perspective requirements.

THTR 101 Acting I (Formerly THTR 208)

Learn the fundamental techniques of the craft of acting through theatre exercises, presentations, and scene work from popular Broadway and Off-Broadway Plays. Offered every fall.

3 cr.

THTR 110 Theatre Appreciation

Students will explore theatre as a collaborative art through lecture, participation, and an LBC component. The disciplines of acting, directing, playwriting, design, and criticism will be surveyed through the backdrop of popular American theatre. Students will attend and review play productions on and off campus, view "live" theatre on video, view films based on popular plays read in class, participate in a group generated performance project, and experience the separate disciplines outside of class as part of their LBC requirement. Offered every semester.

3 cr.

THTR 151-152 Stageless Players (Formerly COMM 151-152)

Students participate in the theatre productions of the Stageless Players. May be taken more than once. (151 is fall and 152 is spring.)

1 cr.

THTR 201 Acting II (Formerly THTR 308)

Prerequisite: THTR 101 or equivalent, or permission of instructor. This course will explore the acting techniques of Stanislavski through monologue and scene work from the great playwrights of Realism. Offered every spring.

3 cr.

THTR 220 Improvisational Comedy I (Formerly THTR 320)

This course is an intensive introduction to the art and performance of short form improvisation. This course is designed to teach the fundamentals of short form improvisation, which include game playing, scene work, ensemble, and performance. In addition, students will learn the art of creating sketch comedy through journaling, observation, improvisation, and performance. The methods of Viola Spolin and the Players Workshop of Chicago, The Second City of Chicago, Keith Johnstone, and Theatre Sports will be used. The creation and presentation of four public improvisational comedy performances is the backbone of the course. The success of the class is dependent on the creation of an ensemble of players who are committed to the other as being the most important person on stage. The ensemble is more important than the individual in improvisation. Offered every year.

3 cr.

THTR 221 Improvisational Comedy II

This course is an intensive introduction to the art and performance of long form improvisation. Long form "is at least 10 minutes in length and consists of a number of short scenes edited by the performers onstage... The individual parts of long form should be related in some fashion (Libera, *The Second City Almanac of Improvisation*). This course is designed to teach the fundamentals of improv scene work, game playing in scenes, basic rules of improv, several long form structures, group mind in an ensemble, and performance of the taught structures. The methods of I.O. (formerly Improv Olympic), Viola Spolin, The Second City of Chicago, and Keith Johnstone

will be used. Satisfies the aesthetic perspective of the GUR.

3 cr.

THTR 290 Special Topics in Theatre

Topics in theatre that are not offered on a regular basis are examined. This course may be repeated for credit if the topic varies.

3 cr.

THTR 390 Special Topics in Theatre

Topics in theatre that are not offered on a regular basis are examined. This course may be repeated for credit if the topic varies.

3 cr.

GRADUATE DEGREE PROGRAMS—GENERAL INFORMATION

Requirements for the Degrees

In order to qualify for a master's degree, a student must:

- Be formally admitted to the degree program.
- Complete the required programs as approved by the dean of the degree-granting college within eight years prior to the date of graduation. All graduate courses transferred into the programs must be taken within this eight-year period as well.
- Apply no more than six credit hours of transfer credit toward 30-credit graduate programs or 12 credit hours of transfer credit toward 600-level courses in any graduate program requiring 36 or more credit hours. Normally, the final courses are to be taken at Western New England University, but in exceptional circumstances students may apply to the appropriate dean to have their final one, two, or three courses approved to be taken elsewhere.
- Take at least 24 credit hours of the master's degree graduate course requirements at the University.
- Attain an overall grade point average of 3.0 or higher. Overall average is the average of all courses that are applied toward the degree. The degree audit shows the grade point average in all courses completed to that point.
- A student continuously enrolled, with no interruption of academic program longer than one semester or two terms absence, is expected to fulfill the requirements of the catalogue current at the time of admission to the University. A student not continuously enrolled is expected to meet the requirements current at the time of readmission. A one-year leave of absence may be granted at the discretion of the appropriate dean.
- Complete an Application for Degree form, which will place the student's name on the

graduation list for October, February, May or August graduation as appropriate.

Grading System

Work in graduate courses is graded as follows:

Superior	A (4.0)			
Above Average	A- (3.7)	B+	(3.3)	
Average	B (3.0)			
Below Average	B- (2.7)	C+	(2.3)	C (2.0)
Failure	F (0)			

Incomplete Work

An incomplete grade of "I" is awarded only when work is not completed due to circumstances beyond the student's control (such as serious illness). The student has six weeks from the last day of final class and/or examinations to satisfy course requirements. Extension may be granted only for continued circumstances beyond the student's control and must be approved by the instructor and the dean of the college. The "I" becomes "F" for work not completed after the six weeks, or by the conclusion of an approved extension period.

Academic Performance

Graduate students are expected to maintain a high degree of academic excellence in all of their studies.

A graduate student must have a minimum grade point average of 3.0 in all courses applied toward the degree in order to qualify for a graduate degree. Subject to the approval of the dean of the college within which the student is enrolled, a course with a grade of "C+" or lower may be repeated and the grade point average will be computed on the basis of the most recent earned grade. Credit for the course will be awarded only once. The official transcript will show the complete record.

In cases where a course grade of "F" has been assigned as a penalty for academic dishonesty, the student may not replace that grade in the cumulative GPA. If the student is allowed to retake the course, the resulting grade will be counted as a separate course.

Any student who receives three or more grades of "C+" or lower, or two or more grades of "F" will be dismissed from the program. With regard to dismissal, all grades in all courses are considered. In all cases where a letter of

intent to dismiss for academic reasons has been sent, the student has the right to appeal to the Graduate Committee within two weeks of the notice. If an appeal is successful and the student is allowed to continue, the conditions of continuance are spelled out for the student in a letter. If an appeal is unsuccessful, or if no appeal is filed, the student is formally dismissed and such action becomes part of the permanent record.

Graduate students who are conditionally re-admitted must fulfill all the conditions set forth by the appropriate dean at the time of admission. Those conditions are recorded on the degree audit and are duly noted when satisfied.

Graduate courses in the Colleges of Arts and Sciences, Business, and Engineering may be audited on a space-available basis by alumni who have completed bachelor's or master's degrees at Western New England University and who also have the listed prerequisites for the course selected. Alumni may register to audit classes through Student Administrative Services. Courses in the School of Law are not available for alumni auditors. The University does not maintain any record of registration by alumni auditors.

Withdrawal

W (Withdraw)

To withdraw from a course the student must complete a drop form or application for complete withdrawal available from the Office of Student Administration Services or the appropriate college. Absence from class without completing the form does not constitute withdrawal and may result in a failing grade.

If the student withdraws from a course within the first two weeks of the semester, or during the period published in the summer session schedule, no grade is assigned. A grade of "W" indicates that the student withdrew after the second week of classes, but before the date published in the Academic Term Calendar. A grade of "W" carries no academic penalty or prejudice.

Award Of Degrees Policy

The University does not guarantee the award of a degree or a certificate of satisfactory completion of any course of study or training program to students enrolled in any instructional or training program. The award of degrees and certificates of satisfactory completion is conditioned upon satisfaction of all current degree and instructional requirements at the time of such award, compliance with all University policies and regulations, as well as meeting *bona fide* expectations of the faculty.

Undergraduate Student Registration for Graduate-Level Business Courses

Several regulations, listed below, apply to undergraduate students wishing to register for graduate courses in business. These regulations apply to students who have not been accepted into the five-year BSBA/MBA or into the BSBA/MSA.

- A senior with a minimum cumulative average of 3.0 may elect to take two 600 level courses. The graduate courses may be taken for graduate credit providing they do not exceed the normal load of five courses.
- The graduate course cannot be counted toward the undergraduate degree or in the undergraduate cumulative average.
- The student is not considered a matriculated graduate student until officially accepted by the graduate school.
- Upon acceptance into the graduate program, the student may request transfer of these graduate courses.
- Undergraduates registering for graduate courses are responsible for submitting all proper forms, which are available from the dean's office in the appropriate college.

GRADUATE PROGRAMS IN ARTS AND SCIENCES

MASTER OF SCIENCE IN APPLIED BEHAVIOR ANALYSIS

Developed in response to the increasing demand for teachers and practitioners trained in best practices for the education and treatment of individuals with autism and related disabilities, the Master's Program in Applied Behavior Analysis at Western New England University will give working professionals the skills to fill this void. Through a combination of coursework and supervised practical experiences, students completing this program will earn a master's degree in Applied Behavior Analysis and meet the Behavior Analysis Certification Board (BACB) requirements for taking the exam to become Board Certified Behavior Analysts. The program is offered at the New England Center for Children, as are the six courses required for the Masters Program beyond the Certificate Program.

Program Structure

All students will be assigned doctoral-level, Board Certified Behavior Analysts as advisors upon admission to the program. Advisors and students will work collaboratively on the students' professional development. Students are expected to complete 36 total credit hours with 15 credit hours dedicated to core coursework designed to meet the BACB requirements, 9 credit hours of elective coursework, 9 hours of practicum, and 3 credit hours dedicated to thesis credits.

Courses will be offered in three of the four 11-week terms scheduled by the Western New England University Graduate Program (fall, winter, and spring terms). Students will be expected to enroll in 4 credit hours in each term to stay on pace to complete the Master's Program in three years.

Course of Study

Core courses (15 hours)

PSY 501	Principles of Behavior Analysis
PSY 502	Behavioral Assessment
PSY 503	Behavioral Interventions
PSY 505	Methods of Evaluation

PSY 506 Evidence-based Teaching

Elective courses (9 hours)

PSY 504	Autism and Related Disabilities
PSY 507	Theoretical Foundations
PSY 508	Verbal Behavior
PSY 590	Special Topics in Applied Behavior Analysis

Practica (9 hours)

PSY 520-529	Supervised Practicum in ABA
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Thesis Research (3 hours)

PSY 510	Thesis Research
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Admissions

Candidates need to have earned a minimum of a bachelor's degree and must have earned at least a 3.0 grade point average in their bachelor's program. A combined score of 1000 on the verbal and quantitative sections is required for full admission to the program.

MASTER OF EDUCATION IN CURRICULUM AND INSTRUCTION

The University offers an online Master of Education in Curriculum and Instruction. The program is designed to enhance teachers' knowledge and skills with the goal of preparing educational leaders of the future. The program design uses best practices of online learning such as building a virtual learning community, active learning, both formative and summative assessments, a variety of assignments, and varied formats for sharing course content.

Program Objectives

The Master of Education in Curriculum and Instruction program has been designed with the goal of enhancing the knowledge and skills of teachers in order to make them educators of excellence for the 21st century. Specifically, the program seeks to offer students the opportunity to engage in the following areas of academic and professional learning:

- exploration and application of current research on strategies that increase achievement in all students
- constructivist learning experiences

- experience reading, interpreting and conducting research
- interdisciplinary planning strategies
- increased fluency in technology
- differentiated instruction approaches
- responsive teaching and multicultural awareness
- broaden repertoire of approaches for student assessment and evaluation

Structure

The program is a part-time graduate program with courses offered in 11-week terms. Two courses are offered each fall, winter, spring, and summer term. All coursework is conducted online. The program requires the completion of 10 courses. All students take a common core of courses: Education Research, Principles of Differentiating Instruction, Contemporary Learning Theory, Mentoring and Professional Development, Multicultural Education, and Assessment Theory and Design. Upon admission to the program students select either the elementary track (Reading Strategies for Struggling Readers (K-6), Integrating Curriculum through Children's Literature, Infusing Content Areas with Art-Elementary, Deepening Mathematical Content Knowledge), or the secondary track (Reading and Writing in the Content Areas, Ethics in Educational Practice, Adolescent Literacy and Young Adult Literature, Infusing Content Areas with Art-Secondary) to complete the required 10 courses. The program permits students to enroll in a limited number of courses without an interest in a degree.

Elementary Track Requirements

The program requires 10 courses (30 credit hours).

ED 601	Education Research
ED 602	Principles of Differentiating Instruction
ED 603	Contemporary Learning Theory
ED 604	Mentoring and Professional Development
ED 605	Multicultural Education
ED 606	Assessment Theory and Design

ED 610	Literacy Strategies for Struggling Readers (K-6)
ED 611	Integrating Curriculum through Children's Literature
ED 612	Infusing Content Areas with Art-Elementary
ED 613	Deepening Mathematical Content Knowledge

Secondary Track Requirements

ED 601	Education Research
ED 602	Principles of Differentiating Instruction
ED 603	Contemporary Learning Theory
ED 604	Mentoring and Professional Development
ED 605	Multicultural Education
ED 606	Assessment Theory and Design
ED 614	Reading and Writing in the Content Areas
ED 615	Ethics in Educational Practice
ED 616	Adolescent Literacy and Young Adult Literature
ED 617	Infusing Content Areas with Art-Secondary

Admission

The program is designed specifically for teachers or other educators. Students will need to have attained an overall grade point average of 2.8 in their undergraduate work to become a degree candidate. Nondegree participants are welcome to take courses to further personal interest or understanding; they must have a bachelor's degree from a regionally accredited college or university and a minimum 2.8 overall grade point average. Selection of participants will be made on the basis of previous academic records, present and potential performance in education, and supporting letters of reference, one of which must be from the candidate's principal or supervisor.

MASTER OF EDUCATION IN ELEMENTARY EDUCATION

The University offers a Master of Education in Elementary Education (MEEE) program. Fully accredited by the Massachusetts Department of Elementary and Secondary Education, this program allows students to obtain a master's degree leading to the Professional License

in the elementary field. The program offers students content coursework in the areas of computer technology, English, history, mathematics, and science. In addition, there is education coursework that focuses on assessment, research, philosophy of education, administrative skills and mentoring, and adult and professional development. To be eligible to earn a degree from this program, a student will need to have previously completed an approved education program and hold an Initial License in elementary education from the Commonwealth of Massachusetts.

Program Objectives

The Master of Education in Elementary Education program has been designed with the goal of enhancing the knowledge and skills of elementary teachers, in order to make them educators of excellence for the 21st century. Specifically, the program seeks to provide students with the following:

- More in-depth knowledge in the essential content areas of the curriculum: English, history, mathematics, and science.
- Increased knowledge and skills with computers and classroom technology.
- A broader array of techniques for student assessment and evaluation, grounded in contemporary learning theory.
- Increased strategies for dealing with diverse student populations.
- Basic research skills for investigating the teaching-learning process in the classroom.
- Skills for a mentoring role within the profession, and for a variety of administrative duties.
- An understanding of how to promote ongoing personal and professional development.
- A broader philosophical perspective on the profession, which will aid in the refinement of one's own philosophy of education.

Structure

The program is a part-time graduate program with courses offered in 11-week terms. Two courses are offered each fall, winter, spring term, at hours in the late afternoon, convenient for working professionals. The courses are sequenced to run every two years. The program requires the completion of 10 courses. The program permits students to enroll in courses without an interest in a degree.

Master of Education in Elementary Education Requirements

The program requires 10 courses (30 credit hours).

MAET 5xx	Literature for Elementary Teachers; or approved ENGL alternative
HIST 520	Documents of World History
ED 540	Mathematical Theories and Skills for Elementary Teachers
ED 545	Concepts and Methods of the Natural Sciences
ED 535	Technology Education and Integration in the Elementary Classroom
ED 510	Educational Research
ED 515	Assessment: Theories, Strategies, and Design
ED 520	Administrative Skills and Mentoring
ED 525	Adult and Professional Development
ED 530	Philosophy of Education

Admission

The program is designed specifically for elementary teachers who hold an initial license in the field. In addition to having an Initial License for elementary teaching, students will need to have attained minimum overall grade point average of 2.8 in their undergraduate work to become a degree candidate. Nondegree participants are welcome to take courses to further personal interest or understanding; they must have a bachelor's degree from a regionally accredited college or university and a minimum 2.5 overall grade point average. Selection of participants will be made on the basis of previous academic records, present and potential performance in teaching, and supporting letters of reference, one of which

must be from the candidate's principal or supervisor.

MASTER OF ARTS IN ENGLISH FOR TEACHERS

Purpose

The Master of Arts in English for Teachers (MAET) degree program is designed primarily for middle school and secondary school teachers who have an initial license and need a master's degree for final, professional licensure, who want Professional Development Points, or who are interested in continuing their study of English. English majors who have graduated from college but who have not completed the requirements necessary for initial licensure, current teachers who do not have an initial license, and professionals who have decided on a career change may also be interested in the program. (In order to become qualified teachers, in addition to establishing English competencies, these students, on their own, must take certification tests, fulfill state requirements, and complete a practicum.) The program is designed to be inspiring, engaging, and challenging. By emphasizing the breadth and depth of subject matter, it deepens passion for the language arts and literature.

Competency areas

The program stresses four competency areas: writing, speaking, reading/studying literature, and contemporary issues in the teaching of English.

Writing

- Becoming a more accomplished writer, including learning how to present a topic in a variety of forms, to specialized audiences
- Learning how to do intensive research, both online and in the library and demonstrating proficiency in the use of standard reference materials and journals
- Mastering the grammar, mechanics, and rhetoric of English

Speaking

- Advancing oral presentation skills

Reading/studying literature

- Understanding the hierarchy of skills involved in the reading process, with

emphasis on critical analysis of literary works, emphasizing the assessing of needs and the approaches for remedies

- Becoming conversant with literary figures/schools/eras in British and American literature within historical and cultural context
- Becoming conversant with literary terminology, including characteristics of genres
- Becoming aware of different schools of literary criticism

Contemporary Issues in English

- Knowing the socio-cultural issues related to the English language
- Developing awareness of contrastive rhetoric
- Using technology to teach English
- Establishing connections between English and other disciplines

Array of Courses

All courses have connection to the Frameworks and are determined by the backgrounds of the students enrolled in the program. Students choose 10 courses (30 credit hours) from among the courses according to their needs. A Capstone seminar is also required.

MAET 552	Advanced Grammar
MAET 553	Teaching Writing in the English Curriculum
MAET 554	Teaching English in the Multicultural Classroom
MAET 556	The Reading Process in the English Curriculum
MAET 560	Shakespeare and the Elizabethan Age
MAET 561	Poetry
MAET 563	Literary Genres
MAET 564	Cultural-Literary Connections
MAET 565	Great Works of American Literature
MAET 566	Modern American Literature
MAET 570	Seminar: Issues in the Teaching of English
MAET 590	Special Topics

Structure

- The program is designed for part-time participation; all courses are offered in the late afternoon/early evening.
- To complete the program, a student must take 10 courses, 30 credit hours, at least seven of which must be English courses and at most three of which can be education courses.
- The program uses the 11-week term calendar to include two courses per semester, summers included, with courses sequenced to run every two years/every three summers.

MASTER OF ARTS IN MATHEMATICS FOR TEACHERS

Purpose

The Master of Arts in Mathematics for Teachers (MAMT) degree program is designed primarily for middle school and second school teachers who have an initial license and need a master's degree for final, professional licensure, who want Professional Development Points, or who are interested in continuing their study of Mathematics. Mathematics majors who have graduated from college but who have not completed the requirements necessary for initial licensure, current teachers who do not have an initial license, and professionals who have decided on a career change may also be interested in the program. (In order to become qualified teachers, in addition to establishing Mathematics competencies, these students, on their own, must take certification tests, fulfill state requirements, and complete a practicum.) The program is designed to be inspiring, engaging, and challenging.

The broad challenge of mathematics education at all levels is to actively engage students in mathematical thinking. Mathematics education must have immediacy and relevance to attain this goal. Excellent teaching of mathematics occurs when the teacher has a broad-based, in-depth understanding of content coupled with an understanding of how pedagogy and technology can significantly enhance learning environments. This program is structured so that the scholar-teachers will be active participants in a learning process committed to content, pedagogy, and technology.

Program Objectives

The MAMT program provides instruction and support for scholar-teachers in achieving the following objectives. It is our purpose that our students:

1. Improve their mathematical habits of mind.
 - a. Correctly apply inductive and deductive reasoning skills.
 - b. Demonstrate correct use of formal mathematical language and ability to compose a mathematical proof.
 - c. Demonstrate ability to successfully apply mathematical computations and algorithms.
 - d. Understand the connections between different branches of mathematics, as well as between mathematics and other disciplines.

2. Link their content knowledge to classroom experience.

Develop proficiency in introducing advanced mathematical concepts to the classroom.

3. Demonstrate fluency in mathematical communication.

Write and speak about mathematics correctly in a manner sensitive to the audience.

4. Use technology relevant to mathematics.

Use relevant and current technology to aid the understanding of new mathematical concepts, to solve difficult problems, and to communicate mathematics effectively.

Structure

The program is a part-time graduate program with courses offered in the fall, winter, spring, and summer 11-week terms. Two mathematics courses are typically offered per term, running back to back, two days a week, late afternoon and early evening, at hours convenient for the expected teacher audience. The courses will be sequenced to run every two years, so that it would be possible to complete all degree requirements in that time period. The degree requires the completion of 10 courses, and can thus be achieved in a minimum of five 11-week terms. The program also allows students to commit to a longer period of stay to complete

the degree and allows students to enroll in courses without an interest in obtaining the degree. Upon admission into the program, the student will be assigned a faculty advisor who will work closely with the student in identifying a curriculum that best suits the objectives and needs of the student.

MAMT Requirements

The program requires 10 courses (30 credit hours), at least six of which must be core mathematics courses and at most four of which can be non-core mathematics courses. Students can select ED 510, Educational Research, and/or ED 515, Assessment: Theories, Strategies, and Design, as a substitute for a non-core mathematics course upon consultation with either the chair of the Department of Mathematics or their faculty advisor. Students will be required to have an overall GPA of 3.00 or better to become a degree candidate.

Core Mathematics:

MAMT 550	Discrete Mathematics
MAMT 552	Geometry Revisited
MAMT 554	Number Theory
MAMT 556	Graph Theory
MAMT 558	Probability and Statistics
MAMT 562	Linear and Matrix Algebra
MAMT 564	Analysis
MAMT 566	Algebraic Structures
MAMT 568	Mathematical Modeling
MAMT 570	The Mathematics of Symmetry
MAMT 590	Special Topics in Mathematics (if designated as core)

Non-Core Mathematics:

MAMT 540	Calculus Revisited: Theory and Applications
MAMT 542	History of Mathematics
MAMT 544	Creative Problem Solving in Mathematics
MAMT 545	Cryptography
MAMT 546	Chance
MAMT 548	What is Mathematics?
MAMT 590	Special Topics in Mathematics (if designated as non-core)

DOCTORAL PROGRAM IN BEHAVIOR ANALYSIS

General Information

Developed in response to the increasing demand for scientists and practitioners of evidence-based methods for the education and treatment of individuals with autism and related disabilities, the Ph.D. program in Behavior Analysis at Western New England University will give you the skills to fill this void and become a leader in the field. Through a combination of coursework and supervised practical and research experiences, the aim of the Department of Psychology is to train researchers and scientist-practitioners in the discovery, translation, and application of knowledge toward solving human behavior problems of societal importance (e.g., autism and related disabilities). All classroom course work is done at the New England Center for Children.

Program Goals and Objectives

The program will allow students to successfully embark on academic and research careers, as well as careers in the delivery of behavior analysis services. Thus, the primary objectives of our program, which elucidate the core knowledge areas and skills all students are expected to know or be able to do prior to graduating, are:

1. To understand the assumptions, goals, and characteristics of behavior analysis
2. To understand the history of the field of behavior analysis and its relation to psychology and science in general
3. To understand the basic principles of learning and the past and current theoretical models which describe and attempt to explain behavior-environment relations
4. To be able to describe and apply effective behavior-analytic procedures for promoting behavior change
5. To be able to describe and apply single-subject and more traditional group designs
6. To be able to determine the influence of relevant independent variables or interventions

7. To be able to describe, depict, and analyze behavioral data and understand the current quantitative models which describe and attempt to explain behavior-environment relations
8. To be able to describe, distinguish, and apply evidence-based practices for a social problem (e.g., problems associated with autism and related developmental disabilities)
9. To understand a professional culture outside of behavior analysis that is united to better understand and improve conditions relevant to a particular social problem
10. To be able to identify, review, critically analyze, and contribute to the behavioral science and psychological literature
11. To be able to articulate and work within the ethical standards of the Behavior Analysis Certification Board and the American Psychological Association
12. To be able to effectively participate in professional behavioral science activities such as presenting, publishing, and reviewing original research
13. To be able to design and implement effective instruction at the college level

Program Structure

All students are assigned primary and secondary advisors upon admission to the program. The doctoral program operates according to a junior colleague model. In this model, the student and advisor share equal responsibility in planning for the student's academic success and ensuring that the student is making timely progress toward the degree requirements. Thus, advisors assist students as they select required and elective courses, develop their research projects, and prepare for Ph.D. requirements (e.g., assist in selecting a review paper topic). Advisors and students also work collaboratively on the students' professional development. Specifically, advisors assist students in clarifying their goals and attaining substantive experience in teaching (e.g., identifying opportunities and mentoring), research (e.g., ensuring that the student is presenting posters, oral presentations, and is publishing their data where appropriate), and service (e.g.,

committee work at the local or national level, serving as a reviewer for a journal).

Students are expected to complete 54 credit hours with at least 27 of those hours being seminars (the remaining 27 may be dissertation credit, behavior analysis practica, and additional elective seminars). Courses will be offered in three of the four 11-week terms scheduled by the Western New England University Graduate Program (fall, winter, and spring terms).

Students are expected to enroll in 7 total credits in three of the four terms in each of the initial two years of the program. Students are expected to enroll in a total of 4 credits in three of the four terms in the third year of the program. Students not finished with the program by the end of the third year register for 1 credit of dissertation continuance in up to three terms of their fourth year and all subsequent years until completion of all degree requirements. The program must be completed within seven years.

Course of Study

Core courses (15 hours)

PSY 610	Professional Issues, Ethics, and Research Design
PSY 620	Experimental Analysis of Behavior
PSY 630	Descriptive and Inferential Statistics
PSY 640	Quantitative Analysis of Behavior
PSY 650	The Philosophy of Behaviorism

Concentration courses (12-21 hours)

PSY 705	Early Intensive Behavioral Intervention
PSY 720	Assessment of Severe Behavior Disorders
PSY 735	Organizational Behavior Management
PSY 740	Developmental Psychology
PSY 750	Advanced Verbal Behavior
PSY 770	Teaching in the College Environment
PSY 790	Special Topics in Behavior Analysis

Behavior Analysis Practica (9 hours)

PSY 801-809	Behavior Analysis Practica
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Dissertation Research (9-18 hours)

PSY 851-856	Dissertation Research
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PSY 857 Dissertation on Research
Continuance

Spring
PSY 856 Dissertation Research
PSY 809 Behavior Analysis Practicum

Example Program of Study

The following table provides the anticipated schedule with which courses and program requirements may be completed.

Year 1

Fall

PSY 610 Professional Issues, Ethics,
and Research Design
PSY 620 Experimental Analysis of
Behavior
PSY 801 Behavior Analysis Practicum

Winter

PSY 630 Inferential Statistics
PSY 650 Philosophy of Behaviorism
PSY 802 Behavior Analysis Practicum

Spring

PSY 640 Quantitative Analysis of
Behavior
PSY 705 Early Intensive Behavioral
Intervention
PSY 803 Behavior Analysis Practicum

Year 2

Fall

PSY 740 Developmental Psychology
PSY 851 Dissertation Research
PSY 804 Behavior Analysis Practicum

Dissertation Proposal may be submitted*

Winter

PSY 770 Teaching in the College
Environment
PSY 852 Dissertation Research
PSY 805 Behavior Analysis Practicum

Spring

PSY 750 Advanced Verbal Behavior
PSY 853 Dissertation Research
PSY 806 Behavior Analysis Practicum

Comprehensive Program of Study or Review Paper may be submitted and defended

Year 3

Fall

PSY 854 Dissertation Research
PSY 807 Behavior Analysis Practicum

Winter

PSY 855 Dissertation Research
PSY 808 Behavior Analysis Practicum

Dissertation may be defended

Admissions

Candidates interested in this program need to have earned a master's degree in behavior analysis or be certified as a master's-level behavior analyst by the Behavior Analysis Certification Board. Candidates must also have earned a minimum of a 3.6 grade point average (GPA) in their master's degree program and a combined verbal and quantitative score of 1100 on the Graduate Record Exam (GRE) with neither score being below 500 for full admission. The program accepts students who have met these requirements and who show strong potential as scholars and future leaders in the field of behavior analysis.

CERTIFICATE PROGRAM IN APPLIED BEHAVIOR ANALYSIS

Developed in response to the increasing demand for teachers and practitioners trained in best practices for the education and treatment of individuals with autism and related disabilities, the Certificate in Applied Behavior Analysis will give working professionals the skills to fill this void. Students complete 24 total credit hours with 15 credit hours in coursework, 8 hours of practicum, and 1 credit hour of preparation for the Behavior Analysis Certification Board exam.

Program structure

All students will be assigned doctoral-level, board-certified behavior analysts as advisors upon admission to the program. Advisors and students will work collaboratively on the students' professional development. Students are expected to complete 24 total credit hours with 15 credit hours being dedicated to BACB pre-approved coursework, 8 hours being dedicated to BACB pre-approved practicum, and 1 credit hours being dedicated to preparation for the BACB certification exam.

Admissions

Candidates interested in this program need to have earned a minimum of a bachelor's or a master's degree and must have earned at least a 3.0 grade point average in their most recent degree program. Candidates must already work in a relevant practicum site within 30 miles of the Western New England University campus or be willing to be placed in a relevant practicum site within 30 miles of the campus during terms in which they are enrolled in practicum hours.

Typical Course of Study

Academic Year 1

Fall

PSY 501 Principles of Behavior Analysis (3 cr.)

Winter

PSY 502 Behavioral Assessment (3 cr.)

Spring

PSY 503 Behavioral Interventions (3 cr.)

Summer

PSY 511 ABA Practicum I (2 cr.)

Academic Year 2

Fall

PSY 504 Autism and Related Disabilities (3 cr.)

PSY 512 ABA Practicum II (2 cr.)

Winter

PSY 505 Methods of Evaluation (3 cr.)

PSY 513 ABA Practicum III (2 cr.)

Spring

PSY 560 BACB Exam Preparation (1 cr.)

PSY 514 ABA Practicum IV (2 cr.)

Summer

Take BA CB exam

TIMELI

TIMELI is a collaborative arrangement between The Teachers' Loft located in Holyoke, MA, and Western New England University, offering a post-baccalaureate, alternative route to initial teacher licensure. It is an alternative path to licensure, accredited by the Department of Elementary and Secondary Education for a Massachusetts initial license in secondary education in the following content areas: Biology, Chemistry, English, History, Mathematics, and Political Science.

Program Structure

Year 1:

ED 561 Entering the Profession of Teaching 1 cr.
 ED 562 Becoming a Teacher in Today's Schools 1 cr.
 ED 563 Designing Curriculum through Data Collection and Inquiry 1 cr.
 Classroom Field Experience (non credit)
 Content courses as determined upon admission (Will vary)

Year 2:

ED 564 Applying Inquiry Tools: Using Data to Better Practice 1 cr.
 ED 571-ED 576 Culminating Field Experience (credits determined by advising)
 Content courses as determined upon admissions (Will vary)

Eligible candidates for TIMELI must have a Bachelor of Arts or Bachelor of Science degree from an accredited college or university. An overall grade point average of at least a 2.8 (4.0 scale) is typically required for admission. Candidates will be asked to submit official copies of transcripts for all colleges attended, a current résumé, two letters or recommendation, a personal statement, and a \$30 application fee.

It is highly recommended that candidates for TIMELI take and pass the Communication and Literacy Massachusetts Tests for Educator Licensure (MTEL) prior to beginning the program.

For more information about the MTEL visit <http://www.mtel.nesinc.com>.

All incoming students will have an individual meeting to determine what courses they will need in addition to the pedagogy courses. An advisor will assist you throughout the program.

GRADUATE PROGRAMS IN BUSINESS

The programs of graduate study offer advanced education to enhance the professional competence of those employed in business or those preparing to enter professional careers. All graduate courses are offered in the evening in an innovative format. All courses are offered online with optional on campus classes, thus graduate degrees can be completed online.

Study in the graduate business program will lead to either the Master of Business Administration (MBA or MBA Sport) or Master of Science in Accounting (MSA) degree. There are special dual degree options for students who have been accepted to the Western New England University School of Law (JD/MBA, JD/MSA) or College of Pharmacy (PharmD/MBA).

There is also a special dual degree option for students who have been accepted to the Western New England University College of Pharmacy (PharmD/MBA).

MASTER OF BUSINESS ADMINISTRATION

Managers today have to operate in a rapidly changing and uncertain environment, ready for any situation, good or bad, that requires skilled decision-making. Anticipating and responding to these changes in positive ways is what will distinguish the successful manager.

Program Learning Goals

The Master of Business Administration (MBA) program is designed to develop and enhance the skills of those who hold or aspire to hold management responsibilities within organizations. Students attain a theoretical understanding and demonstrate a practical grasp of the management skills required to effectively negotiate a turbulent business environment. Knowledge and skills will be developed through theoretical study and experiential activities. Upon completion, successful students in the MBA program will be able to exhibit their knowledge of business and management in a global and multi-cultural context in the following ways:

Decision Making Skills and Problem Solving:

apply knowledge of the functional areas of business and integrative approaches for the development of solutions to organizational and management challenges.

Leadership Skills and Management Skills:

apply a variety of organizing, planning, controlling, team building, and communication skills necessary for effective management and leadership of organizations in globally diverse and dynamic environments.

Global Environmental Analysis:

demonstrate the ability to assess and evaluate dynamic internal and external elements of the competitive global environment.

Ethics and Social Responsibility:

demonstrate an awareness of ethical considerations in the conduct of business and an appreciation of the importance of business ethics and social responsibility in the decision-making process.

Admissions Standard

As an AACSB International accredited institution, the College of Business requires all applicants to satisfy specific core business knowledge requirements within six months of entry into the graduate business programs. This core knowledge includes an introductory understanding of accounting, finance, quantitative methods, and economics. Additionally, coursework in the MBA program requires a moderate level of proficiency in computer skills, including the use of Microsoft Office (specifically Word and PowerPoint) and the Internet. Of particular importance is an above average knowledge of Excel software skills. Applicants must demonstrate competency in each of the areas mentioned above in one of the following ways:

- Completion of an undergraduate business degree (typically 'B' (3.0) or better average with no grade below a 'C') in relevant core coursework.
- Completion of relevant undergraduate coursework in the following areas with acceptable performance (typically 'B' (3.0) or better average with no grade below a 'C').
 - Accounting: financial reporting

- Finance: introduction to corporate finance
- Quantitative Methods: introduction to statistics
- Economics: introduction to micro economics
- Completion of the Prerequisite Self Study modules available at Western New England University. Applicants may elect to complete self study modules that provide the necessary background to maximize the student's graduate business education experience. The self study modules are designed to be accessed online, with no required classroom involvement. These modules provide students with access to the prerequisite content material, problem sets for practice, diagnostic self assessments, and online access to an instructor for further explanation and assistance with the concepts. Those electing to complete the self study modules will need to validate their learning by successfully passing a final test administered through the College of Business.
- Applicants may enroll in the self study modules at any time during the year. The modules are designed to be completed in 11 weeks.

Prerequisite Self Study Modules:

BUS 551	Accounting Principles Equivalent of AC 201— Financial Reporting
BUS 552	Finance Principles Equivalent of FIN 214— Introduction to Finance
BUS 553	Quantitative Methods Principles Equivalent of BIS 220— Introduction to Business Statistics
BUS 554	Economic Principles Equivalent of EC 111—Micro- economic Principles

MBA Program Structure

The MBA degree, earned after 36 credit hours of study, comprises core and elective coursework. Each area of coursework requires the following:

Core requirements:	30 credit hours
Elective requirements:	6 credit hours

Innovative course delivery is a characteristic of the College of Business Graduate programs. Students will have the opportunity to take courses in an innovative format that integrates in-class and online learning environments, or a completely online format. Technological integration is achieved through the use of the innovative *Manhattan* Virtual Classroom, completely developed at Western New England University. The *Manhattan* Virtual Classroom has become an integral part of all courses regardless of the method in which they are delivered.

Applicants to the MBA program who are in the process of completing the admission process may take two graduate business courses and work on satisfying the core knowledge requirement concurrently.

Students who meet the admission standards for entry into the MBA program but have not completed the core knowledge requirement will be admitted under Tentative Status. If core knowledge requirements are not completed, students may not continue to take any additional 600 level courses until the requirements have been completed.

There is an option for students currently enrolled, or accepted to, the Western New England University School of Law to complete both the Juris Doctorate and the MBA in a unique combined degree program. Interested students should contact the School of Law Admissions Office and the College of Business Associate Dean's Office for specific information. There is also an option for students currently enrolled in the Western New England University College of Pharmacy to complete both the PharmD. and the MBA.

**Core Course Requirements
30 credit hours**

Completion of the following 10 courses is required:

BUS 605	Problem Solving; and Decision Making
MAN 600	Leadership
BUS 610	Changing Business Environment
AC 630	Accounting for Decision Makers
FIN 630	Managerial Finance
BIS 610	Information Technology Management and Applications
MAN 610	Organizational Behavior and Theory

BIS 620 Decision Support Models
 MK 640 Marketing Management
 BUS 680 Strategic Management
 The final course in the program is designed to integrate the knowledge learned in the core coursework to enhance student understanding of management practice.

Each course is three credits.

**Elective Course Requirements
 6 credit hours**

Students may chose to take elective courses based on their individual interests and professional needs. Throughout the program, students will be provided with a variety of elective course offerings in accounting, business information systems, finance, general business, management, and marketing. Elective courses can be taken at any time during the program. It is best, however, for students to plan on taking electives later in their MBA study after completing the majority of their foundation coursework.

**MASTERS IN BUSINESS
 ADMINISTRATION (MBA SPORT)**

The MBA Sport program is designed for current sport industry practitioners, business professionals seeking to acquire the skills necessary for a career in the sport industry, and sport management undergraduate majors seeking to further their education in sport management.

In addition to the MBA program learning goals, the MBA Sport program has the following learning goal: To develop and apply strategies for enhancing revenue in sport organizations.

Structure

The MBA Sport program seeks to offer an industry specific concentration to our regular MBA and therefore, relies on the MBA core as the program's foundation. Twelve additional credits in sport management are required to complete the degree as proposed.

**MBA Core Course
 Requirements 30 credits**

See p. 44 for an explanation of these requirements.

**Sport Management Concentration
 Course Requirements 12 Credits**

SPMN 670 The Business of Sport 3

SPMN 671	Sport Law	3
SPMN 672	Sport Marketing: Promotion and Sales	3
SPMN 673	Elective* or Internship or Consulting Practicum	3
TOTAL		42 Credits

*Possible electives:
 International Sport
 Collegiate Athletics Management
 Sport Facilities Management

Admissions Standards

See p. 14 and p. 341 for graduate admissions requirements.

**JURIS DOCTOR/MASTER OF
 BUSINESS ADMINISTRATION**

The College of Business and School of Law at Western New England University have collaborated to offer a program unique to western Massachusetts for those students interested in attaining their MBA while pursuing a career in law. This is a dual degree program, where students completing the requirements for each program will receive two separate degrees, one in business and one in law. Pursuing both degrees allows students to take advantage of cross credits, where 12 credits of business coursework can be applied toward the 88 credits required for the JD degree, and, six credits of law coursework can be applied toward the 36 credits required for the MBA degree.

This is a structured program designed to meet the guidelines delineated by the American Bar Association and AACSB International accreditation. Candidates for the program must have a four-year undergraduate degree from an accredited college or university. Students are required to apply to both the MBA program through the College of Business and the J.D. program through the School of Law. Those interested in this degree option should contact the School of Law Admission Office and College of Business Associate Dean's Office for specific information on application for admissions.

PHARMACY DOCTORATE/ MASTER OF BUSINESS ADMINISTRATION

The Colleges of Business and Pharmacy at Western New England University have collaborated to offer a program unique to western Massachusetts for those students interested in attaining their MBA while pursuing a career in pharmacy. This is a dual degree program, where students completing the requirements for each program will receive two separate degrees, one in business and one in pharmacy. Pursuing both degrees allows students to take advantage of cross credits, where 6 credits of business coursework can be applied toward the 148 credits required for the PharmD degree, and, nine credits of pharmacy coursework can be applied toward the 36 credits required for the MBA degree.

This is a structured program designed to meet the guidelines delineated by the American Council Pharmaceutical Education (ACPE) and AACSB International accreditation. Candidates for the program must have a four-year undergraduate degree from an accredited college or university. Students are required to apply to both the MBA program through the College of Business and the PharmD program through the College of Pharmacy. Those interested in this degree option should contact the College of Pharmacy Admission Office and College of Business Associate Dean's Office for specific information on application for admissions.

MASTER OF SCIENCE IN ACCOUNTING (MSA)

Purpose

The Master of Science in Accounting degree provides students with the opportunity to develop skills in planning, controlling, evaluation, and analysis that characterize a successful career in accounting. Graduates of this program satisfy the requirements to sit for the CPA exam in Massachusetts. Graduates of this program who have an undergraduate degree in business are also eligible to sit for the CPA exam in Connecticut. Students taking the CPA exam in other jurisdictions must check the requirements of the respective jurisdiction.

Program Learning Goals

Students will be able to:

1. Demonstrate competency in analytical reasoning and problem solving skills.
 - a. Apply relevant accounting knowledge, quantitative and qualitative decision making skills to resolve accounting-related issues in: financial reporting, cost accounting, auditing, and taxation
 - b. Apply relevant accounting knowledge, quantitative and qualitative skills to critically analyze financial statements.
2. Demonstrate professional perspective in understanding accounting theory and practice.
 - a. Understand the historical development of accounting theory, its impact on contemporary accounting practice, and how it relates to external and internal users.
 - b. Understand the international accounting and auditing issues currently facing the accounting profession.
3. Demonstrate proficiency in using ethical reasoning skills.
 - a. Identify ethical issues faced by accounting professionals.
 - b. Describe and analyze ethical perceptions and frameworks for responding to ethical dilemmas.
 - c. Make a choice/evaluation and be able to effectively justify it based on professional codes of conduct and/or social responsibility.
4. Demonstrate effective use of research skills in investigating accounting issues/topics.
 - a. Identify relevant information for the research issue/topic.
 - b. Locate and obtain information using professional accounting literature (e.g., FASB Accounting Standards Codification, IFRS, SAS, AS, IRC, etc.) and professional data bases.
 - c. Resolve new or emerging accounting issues in a global perspective through researching the professional standards and codes

Admissions Standards

See p. 14 for graduate admissions requirements.

Academic Performance

The academic standards discussed on p. 330 apply to students in the MSA program with the following exception:

Any student who receives two or more grades of “C+” or lower will be dismissed from the program.

Structure

The MSA consists of three areas: undergraduate foundation courses, required accounting courses, and elective courses. These three areas are discussed below.

Undergraduate Foundation Courses 27 credit hours

AC 201	Financial Reporting I
AC 202	Managerial Accounting
AC 305	Financial Reporting II
AC 306	Financial Reporting III
AC 309	Cost Accounting
AC 330	Accounting Information Systems
AC 413	Fundamental Concepts of the Tax Structure
AC 419	Auditing and Assurance Services
FIN 214	Introduction to Finance

Students admitted into the MSA program must have completed the undergraduate courses with a “B” average or better and no grade below a “C.” For purposes of admission only the highest grade achieved in each of the undergraduate courses will be considered. Students who are lacking some or all of the undergraduate foundation courses may be conditionally admitted to the program but must complete all remaining undergraduate core courses within a two-year period. During this time they will be allowed to take no more than two graduate courses toward the MSA degree. Grades on the undergraduate core courses taken after admission to the program will not be included in the GPA calculations of the program. The GPA calculation of the MSA program will be based solely on graduate coursework.

Required Courses 21 credit hours

AC 610	Cost-Based Decision Making
AC 611	Municipal and Fund Accounting
AC 612	Financial Statement Analysis
AC 614	Advanced Taxation of Business Entities
AC 620	Advanced Topics in Auditing and Assurance Services
AC 622	Accounting Theory and Contemporary Issues
FIN 630	Managerial Finance

In addition to these courses, students complete their degree program by choosing electives or a concentration. The concentrations are Forensic Accounting and Fraud Investigation, and Taxation.

Electives 9-12 credit hours

Students who do not pursue a concentration may complete their degree requirements by taking 9-12 credits of business electives.

Students who have earned 24 undergraduate credit hours in non-accounting business courses are required to complete three graduate business courses (9 credit hours). These may be either accounting or non-accounting courses. (Other than AC 630)

Students who have not earned 24 undergraduate credit hours in non-accounting business courses are required to complete four non-accounting graduate business courses (12 credit hours).

Forensic Accounting and Fraud Investigation Concentration

Concentration Description

The Forensic Accounting and Fraud Investigation concentration offers advanced training for accountants in fraud investigation accounting, forensic accounting, and litigation support. This provides an important area of specialization for accountants looking to expand career opportunities.

In addition to the MSA program learning goals, this concentration has the following learning goals:

- Demonstrate an understanding of the accounting and legal fundamentals of forensic accounting and fraud investigation.
- Apply the concepts, tools, and techniques employed in financial investigation,

including the role of the forensic accountant in litigation support.

- Learn the concepts and techniques employed in financial investigations.

Required Courses

A. MSA Core courses 21 credit hours

AC 610	Cost-Based Decision Making
AC 611	Municipal and Fund Accounting
AC 612	Financial Statement Analysis
AC 622	Accounting Theory and Contemporary Issues
AC 614	Advanced Topics in Taxation
AC 620	Advanced Topics in Auditing
FIN 630	Managerial Finance

B. Required Concentration Courses 9 credit hours

AC 641	Introduction to Fraud	3 cr.
AC 642	Forensic Accounting	3 cr.
BL 640	Law for Accountants	3 cr.

Master of Science in Accounting (MSA) Program Taxation Concentration

Concentration Description

A concentration in Taxation enables individuals to enter the accounting profession with backgrounds in tax accounting, tax research, international and interstate tax accounting, and accounting for income taxes. In addition to developing students' competence in taxation rule-making process, practice, administration, and policy, the concentration will provide students with the opportunity to acquire technology and information literacy skills needed to perform quality tax research.

Besides the MSA program learning goals, this concentration has the following learning goals:

- Acquire technology and information literacy skills to perform quality tax research
- Demonstrate the ability to identify legal issues associated with wealth transfer and estate taxation.

Required Courses

A. MSA Core courses 21 credit hours

AC 610	Cost-Based Decision Making
AC 611	Municipal and Fund Accounting
AC 612	Financial Statement Analysis
AC 622	Accounting Theory and Contemporary Issues

AC 614	Advanced Topics in Taxation
AC 620	Advanced Topics in Auditing
FIN 630	Managerial Finance

B. Required Concentration Courses 10 credit hours

AC 646	Selected Topics in Taxation	3 cr.
AC 647	Taxation Research and Writing	3 cr.
LAW 803	Federal Wealth Transfer Taxes	2 cr.
LAW 804	Federal Income Taxation of Estates and Trusts	2 cr.

*AC 647 must be taken prior to LAW 803/804

JURIS DOCTOR/MASTER OF SCIENCE IN ACCOUNTING

The College of Business and School of Law at Western New England University have collaborated to offer a program unique to western Massachusetts for those students interested in attaining their MSA while pursuing a career in law. This is a dual degree program, where students completing the requirements for each program will receive two separate degrees, one in business and one in law. Pursuing both degrees allows students to take advantage of cross credits, where 12 credits of business coursework can be applied toward the 88 credits required for the JD degree, and, six credits of law coursework can be applied toward the 30 credits required for the MSA degree.

This is a structured program designed to meet the guidelines delineated by the American Bar Association and AACSB International accreditation. Candidates for the program must have a four-year undergraduate degree from an accredited college or university. Students are required to apply to both the MSA program through the College of Business and the J.D. program through the School of Law. Those interested in this degree option should contact the School of Law Admission Office and College of Business Associate Dean's Office for specific information on application for admissions.

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT/ MASTER OF BUSINESS ADMINISTRATION (MSEM/ MBA)

The Colleges of Business and Engineering offer a joint MSEM/MBA for those in the engineering profession who want to advance their knowledge and improve their management career opportunities in engineering and technology-oriented companies. By pursuing the combined degree program, students earn the MSEM/MBA in 54 credits, taking advantage of 12 credits that can be applied to both degrees.

Candidates for the program must have a four-year undergraduate degree from an accredited college or university. Those interested in this degree option should contact the Admissions Office for specific information about the application process.

FIVE-YEAR BACHELOR/MBA PROGRAM

This program allows undergraduate students in the Colleges of Arts and Sciences, Business, or Engineering to accelerate the completion of both the bachelor's and master's degrees in business. Students can earn the popular and valuable Master of Business Administration degree with just one additional year of study. This program is available to students of all majors except for Education and Social Work.

Students will earn both BSBA and MBA degrees within five years of entry as an undergraduate. Undergraduate study in business will satisfy all prerequisite coursework requirements for the MBA program. See p. 342 for program outline.

Program Prerequisites:

Satisfied after completing the undergraduate business core (BIS 220, EC 111, AC 201, and FIN 214) courses with a "B" average or better and no grade below a "C".

Program Application and Admission Requirements:

This program seeks students who have excelled in their undergraduate studies. Applicants must:

1. Earn an overall GPA of 3.0.
2. Complete the College of Business Graduate Studies application, and essays for the MBA program. All application materials should be submitted to the Admissions Office.
3. Forward scores for the Graduate Management Admission Test (GMAT) to the Admissions Office. Students should seek to score 500 or higher on the GMAT.

Applicants may take up to two graduate courses in the fall term of their senior year. A third graduate course may be taken during the senior year after a student has been admitted.

Schedule of Courses:

Senior Year - Undergraduate program

Fall Semester

- Up to 12 credits of undergraduate coursework*
- Three credits of graduate coursework: BUS 610 (Fall graduate term)

Spring Semester

- Up to 12 credits of undergraduate coursework*
- Six credits of graduate coursework: MAN 610 (winter graduate term)/BUS 605 (spring graduate term)

Fifth Year - Masters Program

Summer Term

AC 630	Accounting for Decision Makers
BIS 610	Information Technology Management and Applications
MAN 600	Leadership

Fall Term

FIN 630	Managerial Finance
MK 640	Marketing Management
BUS 605	Problem solving and Decision Making
	or
MAN 610	Organizational Behavior and Theory

Winter Term

BIS 620	Decision Support Models
BUS 6xx	Graduate Internship or Small Business Consulting or Business Elective
BUS 680	Strategic Management

Summer Term

BUS 6xx	Business Elective
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**Business students must complete all requirements for the BSBA degree independent of the graduate coursework completed during their senior year. This may require students to take courses during summers or winter session to accelerate undergraduate studies.*

FIVE-YEAR BACHELOR/ MBA PROGRAM – EARLY ACCEPTANCE

Students who have achieved a high level of success in their high school academic performance may apply for conditional early acceptance into either program as freshmen. To qualify for this opportunity, applicants typically have earned a high school GPA of 3.5 or higher, and a combined verbal and quantitative sections score of 1200 or higher on the SAT. Once admitted, students must

1. Maintain an overall GPA of 3.3 or higher.
2. Successfully complete an undergraduate degree
3. Earn a “B” average or better with no grade below a “C” in the prerequisite courses.

A detailed program of study can be found on p. 347.

Schedule of Courses:

Senior Year - Undergraduate program

Fall Semester

- Up to 12 credits of undergraduate coursework*
- Three credits of graduate coursework: BUS 610 (Fall graduate term)

Spring Semester

- Up to 12 credits of undergraduate coursework*
- Six credits of graduate coursework: MAN 610 (winter graduate term) BUS 605 (spring graduate term)

Fifth Year - Masters Program

Summer Term

AC 630	Accounting for Decision Makers
BIS 610	Information Technology Management and Applications
MAN 600	Leadership

Fall Term

FIN 630	Managerial Finance
MK 640	Marketing Management
BUS 6xx	Business Elective

Winter Term

BIS 620	Decision Support Models
BUS 6xx	Graduate Internship or Small Business Consulting or Business Elective
BUS 680	Strategic Management

**Business students must complete all requirements for the BSBA degree independent of the graduate coursework completed during their senior year. This may require students to take courses during summers or winter session to accelerate undergraduate studies. Students may be enrolled in a maximum of 17 credits at any point in time.*

FIVE-YEAR BACHELOR/MSA PROGRAM

This program allows undergraduate accounting majors in the College of Business to accelerate the completion of both the bachelor’s and master’s degrees in accounting. Students will earn both their BSBA and MSA degrees within five years of entry as an undergraduate. With this option students can complete the MSA with just seven months of additional study. Undergraduate study for accounting majors will satisfy all prerequisite coursework requirements for the MSA program. Students will maintain the same academic advisor throughout their degree programs.

Program Prerequisites:

Satisfied after completing the undergraduate business: AC 201, AC 202, AC 305, AC 306, AC 309, AC 330, AC 413, AC 419, and FIN 214, with a “B” average or better and no grade below a “C”.

Program Application and Admission Requirements:

This program seeks students who have excelled in their undergraduate studies. Applicants must:

1. Earn an overall GPA of 3.0.
2. Complete the College of Business Graduate Studies application and essays, for the MSA program. All application materials should be submitted to the Admissions Office.
3. Forward scores for the Graduate Management Admission Test (GMAT) to the Admissions Office. Students should seek to score 500 or higher on the GMAT.

Applicants may take up to two graduate courses in their senior year. A third graduate course may be taken during the senior year after a student has been admitted.

Schedule of Courses:

Senior Year - Undergraduate program:

Fall semester

- Up to 12 credits of undergraduate coursework*,
- Three credits of graduate coursework: FIN 630, AC 610, or AC 612 (Fall graduate term)

Spring Semester:

- Up to 12 credits of undergraduate coursework*
- Six credits of graduate coursework: FIN 630 or BUS 6xx (Winter graduate term), or AC 614 or BUS 6xx (Spring graduate term)

**Students must complete all requirements for the BSBA degree independent of the graduate coursework completed during their senior year. This means that additional credits beyond a normal load must be earned prior to the beginning of the senior year. Students may be enrolled in a maximum of 17 credits at any point in time.*

Fifth Year - Master's Program:

Students who wish to complete the program on an accelerated basis will take remaining required courses and elective courses over the summer and fall graduate terms.

FIVE-YEAR BACHELOR/ MSA PROGRAM – EARLY ACCEPTANCE

Students who have achieved a high level of success in their high school academic performance may apply for conditional early acceptance into either program as freshmen. To qualify for this opportunity, applicants typically have earned a high school GPA of 3.5 or higher, and a combined verbal and

quantitative sections score of 1200 or higher on the SAT. Once admitted, students must

1. Maintain an overall GPA of 3.3 or higher.
2. Successfully complete an undergraduate degree
3. Earn a “B” average or better with no grade below a “C” in the prerequisite courses.

Schedule of Courses:

Senior Year - Undergraduate program:

Fall semester

- Up to 12 credits of undergraduate coursework*,
- Three credits of graduate coursework: FIN 630, AC 610, or AC 612 (Fall graduate term)

Spring Semester:

- Up to 12 credits of undergraduate coursework*
- Six credits of graduate coursework: BUS 6xx or FIN 630 (Winter graduate term) and BUS 6xx or AC 614 (Spring graduate term)

**Students must complete all requirements for the BSBA degree independent of the graduate coursework completed during their senior year. This means that additional credits beyond a normal load must be earned prior to the beginning of the senior year. Students may be enrolled in a maximum of 17 credits at any point in time.*

Fifth Year - Master's Program:

Students who wish to complete the program on an accelerated basis will take remaining required courses and elective courses over the summer and fall graduate terms.

GRADUATE PROGRAMS IN ENGINEERING

The Master of Science programs provide opportunities for coursework in electrical engineering, engineering management, mechanical engineering, and business. At the graduate level, programs of study become less structured. Although it is possible to earn a degree strictly on the basis of coursework alone, students with research interests may undertake a three credit hour project or a six credit hour thesis project.

Master's Advisor

The progress of each student toward the M.S. degree is guided and directed by a master's advisor, who is a College of Engineering faculty member nominated by the student and approved by the assistant dean of the College of Engineering. Incoming students seeking the degree are urged to discuss their proposed concentration area of interest with faculty members in that area with a view toward selecting an advisor later in the semester.

Degree Requirements

The Master of Science programs require a minimum of 30 credit hours of graduate courses with a "B" (3.0) or better average. A minimum of five courses must be at the 600 level. Six hundred (600) level courses are offered in the evening on an 11-week term.

Thesis Option—Minimum Curriculum Requirements

The curriculum for the Master of Science programs (MSEM, MSEE, MSME, and MSE) thesis option requires a minimum of 24 credit hours of graduate coursework and six hours of thesis. The student is admitted to candidacy after satisfactory completion of six hours of graduate coursework with a "B" average or better and after selecting an approved thesis topic. Upon completion of the thesis, a final oral defense of it is required.

Non-thesis Option—Minimum Curriculum Requirements

The curriculum for the Master of Science program (MSEM, MSEE, MSME, and MSE) non-thesis option requires a minimum of 30 credit hours of graduate coursework. Students are admitted to candidacy as soon as possible after satisfactory completion of 6 hours of graduate coursework, maintaining a "B" average or better.

Project Option—Minimum Curriculum Requirements

The curriculum for the Master of Science program (MSEM, MSEE, MSME, and MSE) project option requires a minimum of 27 credit hours of graduate coursework and 3 hours of project. Students are admitted to candidacy as soon as possible after satisfactory completion of 6 hours of graduate coursework, maintaining a "B" average or better. A 3 credit hour project is required. Upon completion of the project, a final oral presentation of it is required.

MASTER OF SCIENCE IN ENGINEERING (MSE)

The Master of Science in Engineering (MSE) at Western New England University is a program driven by the need for technical leaders who have depth in their own technical discipline, breadth across engineering disciplines, knowledge of basic management issues, and the ability to lead project teams. The MSE is intended to meet the educational needs of practicing engineers. The program places emphasis on engineering practice and is ideally suited for individuals who desire a broader graduate experience in a less structured master's degree program.

Core Course Requirements	Credit Hours
EMGT 607	Quality Engineering 3
EMGT 643	Design of Experiments 3
EMGT 648	Project Management 3
	—or—
EMGT 605	Engineering Management 3
EMGT 650	Systems Integration 3
Total	12

Course Requirements

Students are required to complete 30 credit hours of approved coursework at a level of performance consistent with the policies for graduate study in the College of Engineering. Students may elect to complete one of three course options; 1) core courses and 18 credit hours of graduate coursework, or 2) core courses, 15 credit hours of graduate coursework and a 3 credit hour project; or 3) core courses, 12 credit hours of graduate coursework and a 6 credit hour thesis.

Course Selection

In addition to the required four core courses (12 credit hours), a student may select any graduate level course in electrical engineering or mechanical engineering for which they have the appropriate course prerequisites. The course selection must be approved by the assistant dean of engineering and/or the student's master's advisor.

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING(MSEE)

Core course requirements	Credit hours
EMGT 605	Engineering Management —or—
EMGT 648	Project Management 3
EMGT 607	Quality Engineering 3
EMGT 643	Design of Experiments 3
EMGT 650	Systems Integration 3
Total	12

Non-Thesis Option—Minimum Curriculum Requirements

Core course requirements	12 credit hours
EE 601	Advanced Electrical Engineering Analysis 3 credit hours
*600 level	EE or CPE course 9 credit hours minimum
*500 level	EE or CPE course 6 credit hours maximum
Total	30 credit hours

Thesis Option—Minimum Curriculum Requirements

Core Course Requirements	12 credit hours
EE 601	Advanced Electrical Engineering Analysis 3 credit hours
*600 level	EE or CPE course 6 credit hours minimum
*500 level	EE or CPE course 3 credit hours maximum
Thesis	6 credit hours
Total	30 credit hours

Project Option—Minimum Curriculum Requirements

Core Course Requirement	12 credit hours
EE 601	Advanced Electrical Engineering Analysis 3 credit hours
*600 level	EE or CPE course 9 credit hours minimum
*500 level	EE or CPE course 3 credit hours maximum
EE 685	Electrical Engineering Project 3 credit hours
Total	30 credit hours

*Courses numbered at the "6xx" level are for graduate students only and are offered on an 11 week term.

Courses numbered at the "5xx" level are provided for entry level graduate students who may require a stronger foundation in a subject area before proceeding to 600 level courses. "5xx" courses are dual listed with "400" level undergraduate courses and are offered during the traditional 15 week fall or spring semesters. Course registration in 500 level courses must be approved by the master candidate's advisor.

Students may tailor their curriculum to meet their career goals. Students are required to meet with their advisor to develop an academic plan of study.

Electrical Engineering Courses

EE 601	Advanced Electrical Engineering Analysis
EE 614	Advanced Electromagnetics
EE 615	Antenna Theory and Design
EE 616	Introduction to Numerical Electromagnetics
EE 621	Coherent Optics
EE 625	Stochastic Processes - Kalman Filters

EE 650	Advanced Digital Signal Processing
EE 667	Advanced Electrical Materials
EE 670	Optimal Control Systems
EE 685	Electrical Engineering Project
EE 690	Special Topics in Electrical Engineering
EE 698-699	Thesis Research

Computer Engineering Courses

CPE 620	Advanced Computer Architecture
CPE 625	Advanced Software Engineering
CPE 635	Advanced Requirements Analysis
CPE 645	Embedded Software Systems
CPE 648	Software Project Management
CPE 650	Software Architecture
CPE 652	Software Generation and Maintenance
CPE 655	Computer Network Architecture
CPE 690	Special Topics

MASTER OF SCIENCE IN MECHANICAL ENGINEERING (MSME)

Core course requirements Credit hours

EMGT 605	Engineering Management	
	—or—	
EMGT 648	Project Management	3
EMGT 607	Quality Engineering	3
EMGT 643	Design of Experiments	3
EMGT 650	Systems Integration	3
Total		12

Non-Thesis Option—Minimum Curriculum Requirements

Core course requirements 12 credit hours

Concentration area	18 credit hours
Total	30 credit hours

Thesis Option—Minimum Curriculum Requirements

Core course requirements 12 credit hours

Concentration area	12 credit hours
Thesis	6 credit hours
Total	30 credit hours

Project Option—Minimum Curriculum Requirements

Core course requirements 12 credit hours

Concentration area	15 credit hours
ME 685	Mechanical Engineering Project
	3 credit hours
Total	30 credit hours

**Concentration area courses can be selected in such a way to expand a student's technical knowledge in keeping with their interest and professional needs. Students are required to meet with their advisor to develop a plan of study.*

Mechanical Engineering Courses

ME 610	Measurement Systems
ME 619	Experimental and Analytical Stress Analyses
ME 620	Applied Mechanical Design
ME 626	Applications of Advanced Fluid Mechanics
ME 632	Fundamentals of Flight
ME 635	Design of Alternative Energy Systems
ME 640	Materials Selection for Engineering Design and Manufacturing
ME 651	Applied Computational Fluid Dynamics
ME 654	Computer Control of Manufacturing
ME 660	Practical Aspects of Vibrations, Noise, and Acoustics Engineering
ME 685	Mechanical Engineering Project
ME 690-691	Special Topics
ME 698-699	Thesis Research

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT (MSEM)

Nearly half of the engineers working in industry serve in management capacities, yet many undergraduate engineering curricula do not include information on the development of management problem-solving skills. The Master of Science in Engineering Management program addresses this need by including core courses in project management; supply chain management; and logistics, quality engineering, and statistical methods for quality assurance.

Program Objectives

Graduates of the MSEM program will:

- be able to plan, design, and manage technological projects;
- have increased career advancement opportunities given their coursework and experience in the program; and
- be better prepared to manage and implement change within their organization.

Core Courses

EMGT 607	Quality Engineering
EMGT 615	Statistical Quality Control
EMGT 619	Engineering Supply Chain
EMGT 648	Project Management
	—or—
EMGT 605	Engineering Management

In addition to the required four core courses (12 credit hours) above, students can expand their technical knowledge in keeping with their interest and professional needs by selecting any graduate level course in engineering management. A student may also select a maximum of three graduate courses from the Master of Business Administration (MBA) program.

Electives

Engineering Management Electives—9 credit hours minimum*

Engineering or Business Electives—9 credit hours maximum

Production and Manufacturing Systems courses

EMGT 622	Lean Production Systems
EMGT 609	Engineering Cost Analysis
EMGT 645	Quantitative Models of Supply Chain Management
EMGT 629	Advanced Manufacturing Engineering Systems
EMGT 637	Ergonomics and Occupational Safety
EMGT 640	Energy Management
EMGT 643	Design of Experiments
EMGT 647	Facility Planning

Quality Engineering courses

EMGT 609	Engineering Cost Analysis
EMGT 643	Design of Experiments

EMGT 644	Quality Systems and Process Improvement
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Business and Engineering Information Systems courses

BIS 610	Information Technology Management and Applications
EMGT 624	Engineering Management Information Systems
EMGT 626	Computer Simulation of Engineering/Business
EMGT 620	Multi-Criteria Decision Analysis
BIS 6xx	Business Information System Elective
CPE 5xx	Computer Engineering elective
CPE 6xx	Computer Engineering elective

Five-Year Bachelor/MSEM Program

This program allows undergraduate Engineering majors in the College of Engineering to accelerate the completion of the bachelor's degree and to earn the master's degree in Engineering Management (MSEM) with just one additional year of study.

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT/ MASTER OF BUSINESS ADMINISTRATION (MSEM/ MBA)

The Colleges of Business and Engineering offer a joint MSEM/MBA for those in the engineering profession who want to advance their knowledge and improve their management career opportunities in engineering and technology-oriented companies. By pursuing the combined degree program, students earn the MSEM/MBA in 54 credits, taking advantage of 12 credits that can be applied to both degrees.

Candidates for the program must have a four-year undergraduate degree from an accredited college or university. Those interested in this degree option should contact the Admissions Office for specific information about the application process.

GRADUATE ENGINEERING CERTIFICATE PROGRAMS

Students may complete a four-course sequence in one of the following areas:

- Green Belt
- Lean Systems

For information on specific certificates, contact the Graduate Admissions Office.

SCHOOL OF LAW

Arthur R. Gaudio, Dean

Beth D. Cohen, Associate Dean for Academic Affairs

William Childs, Associate Dean for External Affairs

For nearly a century, Western New England University School of Law has been preparing men and women to enter the legal profession. It is the only Massachusetts law school outside of the Boston area accredited by the American Bar Association. It is also a member of the Association of American Law Schools.

Though its academic programs are rigorous, the learning environment at the School of Law promotes cooperation and interaction at every level. Faculty, staff, and administration are highly accessible and supportive.

The School of Law has more than 7,000 alumni who live and practice in 50 states and several U.S. territories.

For admissions information, contact the School of Law at 413-782-1406 or 800-782-6665 or at www.law.wne.edu

JURIS DOCTOR/MASTER OF BUSINESS ADMINISTRATION (JD/MBA) DEGREE

After completing one year of the Juris Doctorate program, students may simultaneously work on the requirements of the Juris Doctor from Western New England University School of Law and the Master of Business Administration from Western New England University College of Business. Seven of the MBA Program's 37 credits may be satisfied through law classes, while 12 of the 88 required law credits may be satisfied through business classes.

Candidates for the program must have at least a four-year undergraduate degree from an accredited college or university. Students are required to apply to both the MBA program through the College of Business and the JD program through the School of Law.

COLLEGE OF PHARMACY

Evan Robinson, Dean

Beth Welch, Associate Dean for Academic Affairs

Jeffrey Sophinos, Assistant Dean for Experiential Affairs

Joshua Spooner, Assistant Dean for Student Affairs

The Western New England University College of Pharmacy will be prominently known for excellence in the preparation of pharmacy practitioners as educators of patients and other healthcare professionals and leaders for the betterment of patient care.

The College of Pharmacy will begin the professional phase of the pharmacy program in fall 2011 with the planned enrollment of 75 learners. The College of Pharmacy curriculum is designed to prepare learners to enter the practice of pharmacy as general practitioners in a variety of practice settings and deliver optimal patient care to diverse populations. The primary intention of this comprehensive educational program is to transition dependent learners into independent professional practitioners who are dedicated to serving the community in which they live. The curriculum provides learners opportunities to develop the knowledge, skills, and attitudes necessary to become licensed professionals who will provide optimal patient care in a caring, collaborative, safe, and culturally aware manner.

The curriculum will entail a competency-based framework, using integrated content and teaching, problem-based approaches when appropriate, integrated technology, and experiential exposure threaded throughout. The curriculum is designed to incrementally develop strong scientific foundations (in the biomedical, pharmaceutical, social and administrative, and clinical sciences) and professional skills. During pharmacy practice experiences, learners have many opportunities to demonstrate and apply these skills in progressively advanced methods.

Accreditation will be sought from the Accreditation Council for Pharmacy Education (ACPE). For the most current information on accreditation status, please visit the College of Pharmacy website www.wne.edu/pharmacy/

For admissions information, contact the College of Pharmacy at 413-796-2113 or rxadmissions@wne.edu or visit our website.

First Professional Year

Fall

PHAR 510	Introduction to Pharmacy	1
PHAR 511	Informatics and Evidence-Based Practice I	3
PHAR 512	Immunology	3
PHAR 513	Biochemistry	3
PHAR 514	Pharmaceutics I	2
PHAR 515	Pharmaceutics I Lab	1
PHAR 516	Healthcare Ethics and Law	3
PHAR 517	Health Care Policy and Delivery	2

Dean's Seminar

Semester total 18

Spring

PHAR 520	Healthcare Communications	3
PHAR 521	Informatics and Evidence-Based Practice II	3
PHAR 522	Pathophysiology	3
PHAR 523	Principles of Genetics and Genomics	2
PHAR 524	Pharmaceutics II	3
PHAR 525	Pharmaceutics II Lab	1
PHAR 526	Pharmacy Outcomes	2
PHAR 531	Intro Practice Experience (IPPE) I	2

Dean's Seminar

Semester total 19

Second Professional Year

Fall

PHAR 610	Principles of Pharmacokinetics	3
PHAR 611	Principles of Pharmacology	3
PHAR 612	Principles of Medicinal Chemistry	3
PHAR 614	Patient Assessment Skills Lab	1
PHAR 615	Professional Pharmacy Practice Lab	1
PHAR 616	Practice Management I	3
PHAR 632	Intro Practice Experience (IPPE) II	2

Elective

Dean's Seminar

Semester total 19

356 Graduate Programs

Spring

PHAR 620	IPC&PM I (Self Care)	3
PHAR 621	IPC&PM II (Principles in Special Populations}	2
PHAR 622	IPC&PM III (Renal)	2
PHAR 623	IPC&PM IV (CVS I)	2
PHAR 624	IPC&PM V (CVS II)	2
PHAR 625	IPC&PM Lab I	1
PHAR 626	Practice Management II	2
PHAR 633	Intro Practice Experience (IPPE) III	2
Elective		3
Dean's Seminar		

Semester total 19

Third Professional Year

Fall

PHAR 710	IPC&PM VI (Respiratory)	2
PHAR 711	IPC&PM VII (Endocrine/Repro/GU)	3
PHAR 712	IPC&FM VIII (Infectious Disease I)	2
PHAR 713	IPC&M IX (Infectious Disease II)	2
PHAR 714	IPC&PM X (Musculoskel/Derm)	2
PHAR 715	IPC&PM Lab II	1
PHAR 716	Sterile Products Lab	1
PHAR 734	Intro Practice Experience (IPPE) IV	2
Elective		3
Dean's Seminar		

Semester total 18

Spring

PHAR 720	IPC&PM XI (GI/Nutrition/Hepatic/Pancreatic)	3
PHAR 721	IPC&PM XII (Neuro/CNS)	2
PHAR 722	IPC&PM XIII (Psych)	3
PHAR 723	IPC&PM XIV (Heme/Onc)	3
PHAR 725	IPC&PM Lab III	1
PHAR 726	Pharmacy Law	3
PHAR 727	Patient Care Management	3
Dean's Seminar		

Semester total 18

Fourth Professional Year

Summer

PHAR 800	Ambulatory Care APPE	6
PHAR 801	Acute Care APPE	6

Semester total 12

Fall

PHAR 802	Community Care APPE	6
PHAR 803	Institutional APPE	6

Semester total 12

Spring

PHAR 804	Elective I APPE	6
PHAR 805	Elective II APPE	6
PHAR 806	Research Proj.	1

Semester total 13

STRATEGIC INITIATIVES

The Center for Strategic and Academic Initiatives' primary goal is international recruitment of students and development of undergraduate and graduate degree programs (traditional, professional, online, alternative/intensive scheduling, on-site, off site, graduate full- and part-time interdisciplinary, "boutique" in nature, in-house or out-sourced, etc) as well as noncredit/certificate programs. The Center will serve as an incubator to implement credit and noncredit programs and degrees that the University determines should be launched to take advantage promptly of opportunities that are sought out or that present themselves and that permit the University to reach new audiences. In addition, the Center and the Office of Professional Development Programs is responsible for the development of new continuing education and noncredit opportunities to meet employer, employee, professional, and personal development needs within our region. This initiative may include the development and implementation of new graduate programs, and the development of other entrepreneurial opportunities.

Professional Development Programs

The Office of Professional Development offers an array of professional development/education programs. Our conferences, seminars, noncredit courses, and certificate programs are offered through public formats and onsite at organizations. These programs are designed to help professionals quickly update or acquire the job-related skills and information that will enhance their ability to be successful in their chosen professions.

All of our onsite programs can be customized to meet your organization's needs. We welcome the opportunity to meet with you to discuss your specific training needs and design a proposal for your review. If meeting space or computer resources is an issue, let us know and we will be happy to provide these services at our Springfield campus.

For brochure requests and complete details on all of our professional development programs, call us at 1-800-660-9632 or visit our website, www.wne.edu/pd

- Annual Tax Institute and Workshops
- Fundamentals of Engineering/Engineering-in-Training (FE/EIT) Review Course
- Law Enforcement Seminars
- Project Management Forum
- Regional Social Work Conference and Workshops

Annual Conferences and Certificate Programs

Regional Social Work Conference (29 years)

This conference is an all-day event comprised of 40 plus individual workshops. These workshops vary in topics ranging from AIDS and domestic abuse to professional burnout and new policies. The conference also provides a forum for information exchange on contemporary issues and networking opportunities for human service professionals throughout New England.

Tax Institute (49 years)

The Tax Institute provides high quality written and computer materials, oral presentations from expert speakers on detailed tax structuring, and planning techniques and their practical applications. It addresses timely topics and updates based on changes or developments in the tax law with a focus on the planning opportunities and pitfalls which may result from those changes.

Professional Development Workshops and Trainings

Fundamentals of Engineering/Engineering-in-Training (FE/EIT) Review Course

This 10-session course reviews fundamental engineering subjects, mathematics, and basic sciences to prepare engineers for the General Fundamentals of Engineering Exam. University faculty review concepts and solve problems similar in type and complexity as those encountered on the exam. This course is offered in January in preparation for the spring exam.

Project Management Forum

In collaboration with the SNEC PMI Chapter, the Western Massachusetts Project Management Forum hosts monthly forum meetings on the Western New England University campus for project managers. Creative discussions and guest speakers provide a platform for all area project managers to network, and share ideas, strategies, and solutions to current challenges in the field of project management.

Social Work Workshops

Western New England University's Bachelor of Social Work program, Office of Professional Development, and Social Work Advisory Council sponsor professional development workshops on current issues in the human service field. These workshops have served the needs of human service professionals from Massachusetts and surrounding states by providing a minimum of five programs yearly for CEUs for social workers; license mental health, CADAC, Marriage and Family Therapist; and PDPs for educators.

For detailed information, visit our website, www.wne.edu/pd or call 1-800-660-9632.

GRADUATE COURSE DESCRIPTIONS

Courses are listed alphabetically by prefix.

In the graduate engineering programs, the 500-level courses are open only to graduate students who have not taken the equivalent as part of their undergraduate program of study. Courses numbered 600 and above are open to all graduate students. As part of the engineering master's degree requirement, a minimum of five courses must be taken at the 600 level.

In the graduate business programs, the 500-level courses are pre-MBA courses. Courses numbered 600 and above are open only to graduate students who have successfully completed the related 500-level courses or received exemptions. Only 600-level courses may be used as electives in the graduate business programs.

Graduate Courses in Arts and Sciences

Education

ED 510 Educational Research

Prerequisite: Graduate standing. This course provides an overview of the salient aspects of educational research. The techniques of conceptualizing and conducting qualitative and quantitative research methodologies will be treated. Students will examine the strengths and weaknesses of different methodologies used in research. A main focus of the course is to help students read, understand, critique, and use published reports of research to design and present an original research project relevant to the student's field. Students will be assessed on collaborative participation measures, examinations, and individual research projects.

3 cr.

ED 515 Assessment: Theories, Strategies, and Design

Prerequisite: Graduate standing. This course is designed to provide in-service teachers with learning theories (constructivism, learning styles, multiple intelligences, and brain-compatible learning) as a foundation for broadening their classroom assessment repertoire. Authentic models of assessment will be compared to more traditional formats, and rubric design will be explored. Current

issues in assessment will also be a focus of study and discussion in this class.

3 cr.

ED 520 Administrative Skills and Mentoring

Prerequisite: Graduate standing. The purpose of this course is to train educators in a range of interpersonal and group process skills that can be utilized in educational organizations. Students will learn techniques for the mentoring relationship, with a focus on the skills that can help nurture another's personal and professional development, and with attention to the professional assessment process introduced by Massachusetts Department of Education regulations. Students will also explore ways to build better working relationships among peers, learn group analysis and facilitation techniques, negotiation skills, and team-building techniques.

3 cr.

ED 525 Adult and Professional Development

Prerequisite: Graduate standing. This course examines key elements of adult development and socialization as they relate to an individual's professional life and growth during the early adulthood and middle adulthood periods. A range of developmental perspectives are considered, including the ways adults make meaning intellectually, psychologically, ethically, and socially. Interpersonal relations are examined, as well as issues of gender, ethnicity, and socioeconomic status. Students will be assessed by examinations and written assignments.

3 cr.

ED 530 Philosophy of Education

Prerequisite: Graduate standing. This course is designed to provide an introduction to some of the major philosophical approaches to education, including theories of multicultural education. While exploring a number of schools of philosophy and their implications for education, students will be encouraged to examine each approach in terms of their own experiences. Critical thinking and clarification of a personal philosophy of education are fundamental to the course. Students will analyze the social and cultural elements that have had an impact on education in the modern world, including issues of ethnicity, socioeconomic status, gender, and religion. The conservative and dynamic functions of education will also be considered. Students will be assessed by examinations, class presentations, and written assignments.

3 cr.

ED 535 Technology Education and Integration in the Elementary Classroom

Prerequisites: Graduate standing. Technology Education and Integration in the Elementary Classroom is a course designed to provide an in-depth analysis of technology uses in the K-6 educational setting. This course will entail telecommunications, computer software, multimedia technologies, and microcomputer technologies, and their use in teaching and learning. Upon completion of the course, students will be able to demonstrate technology uses for classroom instruction, management, and enrichment through all technology mediums, create uses for technology in all facets of the curriculum, and demonstrate technology uses for special needs students.

3 cr.

ED 540 Mathematical Theories and Skills for Elementary Teachers

Prerequisite: Graduate standing. This course focuses on the skills and theory in mathematics within the context of problem-solving, communication, connections, and reasoning. Different methodologies will be incorporated, including manipulatives, technology, children's literature, and journaling. Student performance will be assessed by written assignments and projects.

3 cr.

ED 545 Concepts and Methods of Natural Sciences (Formerly CHEM 515)

Prerequisite: Graduate standing. Open only to students in MEEE program. This course examines the principle ideas and theories of the natural sciences. It begins with an introduction to the approach used by the natural sciences to study the universe, the scientific method. Eight major ideas in the natural sciences: the basic laws of physics governing forces and motion, atomic and kinetic theory, the big bang theory of the origin of the universe, patterns of chemical change and the periodic table, the structure of the earth and plate tectonics, biological evolution, the unity of all living things from cells to ecosystems, and DNA structure and function are then examined in the context of their historical development and the scientific method. Finally, the interaction between science and the real world through technology will be explored and the method of benefit/risk analysis will be introduced. Laboratory experiments, group work, and problem solving will be emphasized.

3 cr.

ED 560 Teacher Inquiry Seminar

Prerequisite: Enrollment/participation Teacher's Loft. This course is intended for teachers in their second year, or beyond, who have had foundational experiences with teacher inquiry collaboration, reflective practice, and are enrolled in The Teacher's Loft. The pre K-12 classroom teachers taking part in the course are participating in a professional forum that fosters the development of professional knowledge in a nested learning network (collaborative inquiry community, self, and classroom/school context), and documents the mandatory post-first year induction hours toward their MA state licensure. By engaging in collaborative inquiry, teachers are able to strengthen their teaching practice during the academic year. Teacher inquiry itself becomes a content focus in order for teachers to employ the sustaining professional tool of inquiry in subsequent years of their career. Teachers will complete their inquiry, write an executive summary of their project and present their inquiry at a regional, educational research conference.

3 cr.

ED 561 Entering the Profession of Teaching

This course is designed to introduce students to the profession and practice of teaching. Topics that will be addressed include learning theory, philosophies of education with a view towards articulating a personal philosophy, social justice and critical pedagogy lesson planning, and strategies for becoming a reflective practitioner. Course content will be explored through use of professional readings, media, presentations, discussion (whole class and small group), simulations field based experiences, and organized debate. Students will be assigned field placements (where needed) in conjunction with this class.

1 cr.

ED 562 Becoming a Teacher in Today's Schools

This course is designed to support students in the application of strategies and methodologies encountered in Entering the Profession of Teaching. Topics that will also be explored include: lesson planning with the MA Curriculum Frameworks, classroom management, teaching with diverse populations and needs, and assessment (formative and summative). Course content will be explored through use of professional readings, media, presentations, discussion (whole class and small group), simulations, field-based experiences, and organized

debate. Students will be assigned field placements (where needed) in conjunction with this class.

1 cr.

ED 563 Designing Curriculum through Data Collection and Inquiry

In this course educators will begin transitioning from a more typical class experience towards a more teacher-inquiry driven learning community such as the Teacher Collaborative forum at The Teachers' Loft. At the beginning of the course hands-on experience will inform how data can and should inform teaching practice. A range and variety of data sources will be examined and utilized, including standardized test scores, norm-referenced test results, comparative assessment results, check-list information, rubric data, teacher documentation, and students work more broadly. This course will build on lesson planning by instructing students in content oriented teaching techniques to be used in curriculum development at the unit level. Each individual student will build confidence in interpreting data from a range of sources to improve student learning and come together around particular questions of practice that arise daily in schools. Contemporary Instructional and discussion tools (Blackboard, wikis, blogs, etc) will be taught in this course for students to achieve confidence to work online. Formal inquiry questions will be developed as the elements of inquiry are explored. Where needed, students will be assigned field placements in conjunction with this class.

1 cr.

ED 564 Applying Inquiry Tools: Using Data to Better Practice

In this course educators will take part in a year-long Teachers' Collaborative forum at The Teachers' Loft, a learning community opportunity central to their emerging professional induction experience. Using a more typical class meeting format alternately with contemporary instructional and discussion tools (Blackboard, wikis, blogs, etc), students will examine and utilize a range of data, over the course of the academic year to inform the direction of their own professional inquiry. A range of diverse data sources will be included, including teachers own records and knowledge making, and how the data inform teaching practice will be made explicit. Each educator will establish an inquiry question, area of focus and pursue this line of inquiry throughout the entire academic

year. Educators will act as peer responders, reviewers, and be responsible for not only completing but presenting their inquiry work as the capstone of the course.

1 cr.

ED 571 Culminating Field Experience

Prerequisite: ED 561, ED 562, ED 563, and ED 564

1 cr.

ED 572 Culminating Field Experience

Prerequisite: ED 561, ED 562, ED 563, and ED 564

2 cr.

ED 573 Culminating Field Experience

Prerequisite: ED 561, ED 562, ED 563, and ED 564

3 cr.

ED 574 Culminating Field Experience

Prerequisite: ED 561, ED 562, ED 563, ED and 564

4 cr.

ED 575 Culminating Field Experience

Prerequisite: ED 561, ED 562, ED 563, ED and 564

5 cr.

ED 576 Culminating Field Experience

Prerequisite: ED 561, ED 562, ED 563, ED and 564

6 cr.

ED 571-576 can be taken for credit more than once.

ED 601 Research for Teachers

This course will provide students with an overview on reading, critiquing and conducting educational research. The techniques of designing and conducting both qualitative and quantitative research methodologies will be studied and applied. Students will examine the strengths and weaknesses of different methodologies used in conducting and presenting educational research. Students will design, conduct and present an original research project relevant to the field of education.

3 cr.

ED 602 Principles of Differentiating Instruction

After defining the concept of differentiation, this course will focus on developing a model for differentiating instruction. Students will identify reasons for differentiating instruction; examine which aspects of curriculum should be differentiated, and develop criteria for

determining fairness and effectiveness of differentiated instruction for all learners.

3 cr.

ED 603 Contemporary Learning Theory

This course is designed to engage students in studying learning theory as a foundation for understanding the teaching/learning process. Contemporary theory including: constructivism, learning styles, multiple intelligences, and brain-compatible learning, as well as more traditional theory such as behaviorism will be examined.

3 cr.

ED 604 Mentoring and Professional Development

The purpose of this course is to examine approaches to mentoring and other forms of professional development that are utilized in educational organizations. Students will learn techniques of clinical supervision (data collection, constructive feedback...), strategies for initiating and sustaining a mentoring relationship, and other skills that support induction to the profession of teaching. Students will also explore effective resources and approaches

3 cr.

ED 605 Multicultural Education

This course is designed to engage students in exploring the philosophical, historical, and theoretical foundations of multicultural/multilingual teaching and learning. Students will learn to develop curriculum and other instructional strategies that are responsive to racial, cultural, linguistic, and social class differences that facilitate learning for all learners. Coursework will also investigate and apply a social justice perspective to the teaching/learning process.

3 cr.

ED 606 Assessment Theory and Design

This course is designed to provide as a foundation for broadening students' classroom assessment repertoire. Authentic models of assessment will be compared to more traditional formats; summative and formative assessment strategies will be examined. Students will learn to critique benefits and drawbacks of available assessment tools, as well as design their own. Current issues in assessment will also be a focus of study and discussion in this class.

3 cr.

ED 610 Literacy Strategies for Struggling Readers

In this course students will learn how to collect and analyze student data during literacy events. They will build a repertoire of strategies for fostering and strengthening children's abilities to fully participate in the processes of communicating and meaning making that fluent reading requires. Students will also examine cognitive, linguistic, and cultural impacts on the literacy learning process.

3 cr.

ED 611 Integrating Curriculum through Children's Literature

This course focuses on identifying quality children's literature to use in classroom settings from both a literary and issues approach. Students will develop a repertoire of strategies for using quality children's literature throughout the curriculum (e.g. math, science, social studies) and will learn to read children's literature with a content learning lens. Students will also practice creating lessons that effectively use literature to support and deepen content area learning.

3 cr.

ED 612 Infusing Content Areas with Art-Elementary

In this course students will develop a repertoire of activities that they can integrate into the elementary class curriculum allowing their students to experience art as another way to see, represent, and interpret the world around them; another language in which to express their thoughts, ideas, and feelings. Students will also experience ways to incorporate the purposes of art in societies, the contributions of various artists, and interpretation of art in to meet content area objectives.

3 cr.

ED 613 Deepening Mathematical Content Knowledge

This course focuses on the concepts and skills key to the elementary mathematics curriculum. Students will engage in activities that will strengthen their own conceptual and factual mathematical knowledge. They will also practice designing lesson plans and assessment tools that effectively support and monitor development of students' mathematical understandings.

3 cr.

ED 614 Reading and Writing in the Content Areas

This course will engage students in reviewing content area learning objectives identified

by local, state, and national organizations. Students will then learn about and apply literacy best practices (primarily reading and writing, but other language arts will also be addressed) that best support students' achievement in meeting content area objectives.

3 cr.

ED 615 Ethics in Educational Practice

The focus of this course is contemporary issues in education, especially those involving adolescents and young adults, teacher employment, and curriculum decisions. Using a case study approach students will learn about school law, applied ethics, and educational policy.

3 cr.

ED 616 Adolescent Literacy and Young Adult Literature

This course is designed to support students in examining the unique needs of the adolescent literacy learner. Students will develop a repertoire of criteria for selecting appropriate literature for adolescents using both a literary and issues approach. Students will practice integrating literacy strategies and objectives with themes and issues present in selected young adult literature.

3 cr.

ED 617 Infusing Content Areas with Art-Secondary

In this course students will develop a repertoire of activities that they can integrate into the curriculum allowing their students to experience art as another way to see, represent, and interpret the world around them; another language in which to express their thoughts, ideas, and feelings. Students will also identify ways to incorporate the purposes of art in societies, the contributions of various artists, and interpretation of art in to meet content area objectives. Identification of characteristic features of art works from various historical periods, cultures, and genres that can be incorporated in their content area will be another focus of course content.

3 cr.

English

ENGL 500 Pronunciation, Intonation and Speech

Prerequisite: Admissions into graduate intensive English program. The content of the course will focus on American English sounds, stress, and intonation patterns. Students will listen to and study speeches given by native speakers of English for the purpose of becoming

aware of phonological, rhetorical, and cultural patterns in American communities. Students will also practice academic presentation skills appropriate for graduate students in a North American academic environment.

0 cr.

ENGL 501 Writing for a North American Academic Audience

Prerequisite: Admissions into graduate intensive English program. The primary goal of the course is to prepare international graduate students to write academic papers for a North American audience. Specifically, the course will focus on contrastive rhetoric, structure, conventions, organization, and documentation that is necessary when writing academic papers in a North American context. Students will learn how to revise, edit, and proofread their own papers, which will include a grammar review that is contextualized

0 cr.

ENGL 502 Academic Literacies Across the Curriculum for International Graduate Students

Prerequisite: Admissions into graduate intensive English program. The focus of the course is to introduce students to academic sources from a variety of disciplines. Students will learn to summarize, critique, and synthesize the content that they read with their own ideas through discussion and writing. Awareness of academic language structures in various disciplines will be introduced as well as the appropriate use of sources when writing academic papers.

0 cr.

ENGL 503 Discourse, Fluency, and Conversation for Graduate Students

Prerequisite: Admissions into graduate intensive English program. The focus of the course is to enhance fluency in conversation in both academic and informal settings. Students will become aware of various discourses embedded in the culture so that they can interact effectively with native speakers in a variety of academic and informal settings. Strategies to enhance intercultural communication skills will also be emphasized.

0 cr.

MAET 550-559 Fundamental Studies

MAET 552 Advanced Grammar

This course reviews the rules and conventions of Standard Written English, with emphasis on

the assessment and development of student writing.

3 cr.

MAET 553 Teaching Writing in the English Curriculum (Formerly “Applied Rhetoric I”)

This course covers principles of rhetoric, including both composition theory and the application of rhetorical principles to the evaluation and development of student writing

3 cr.

MAET 554 Teaching English in the Multicultural Classroom (Formerly “Applied Rhetoric II”)

This course focuses on the need to develop pedagogical strategies for the multicultural English classroom. Goals for the course are to develop an understanding of contrastive rhetoric, sociolinguistics, and cross-cultural communication in educational settings.

3 cr.

MAET 556 The Reading Process In The English Curriculum

This course applies the hierarchy of skills in the reading process to the English curriculum. Emphasis is on a) assessing needs and approaching remedies and b) developing skill in critical analysis of literature.

3 cr.

MAET 560-569 Literary Studies

MAET 560 Literary Studies—Shakespeare and The Elizabethan Age

This course examines representative Shakespearean plays and the culture in which they were produced. Relevant historical documents from Elizabethan and Jacobean England are studied alongside the plays, and pedagogical techniques for the teaching of Shakespeare and English Renaissance culture are both discussed and practiced.

3 cr.

MAET 561 Literary Studies—Poetry

This is a comprehensive course, studying poetry with an eye towards teaching methods of interpretation. The class considers ways to make reading poetry more rewarding and enjoyable, but it also discusses questions of form and genre, meter and scansion, the use of historical and biographical approaches in tandem with close readings, the combinations of art and music with poetry, and philosophies of the purpose of poetry. Pedagogical techniques, especially creating assignments to help students understand and write about

poetry from their own experiences in writing poems, are explored.

3 cr.

MAET 563 Literary Studies—Genres

Using selected texts from around the world, this course offers in-depth study of a range of literary genres and the conventions that distinguish them. Goals of the course include exploring how literary form reflects an author’s purpose, how it shapes meaning, and how combining forms can uniquely express complex themes and issues. Genres studied are likely to include short stories, novels, plays, and memoirs.

3 cr.

MAET 564 Literary Studies—Cultural-Literary Connections

This course examines representative works from a period of literature and studies the culture in which they were produced. Pedagogical techniques for relating literature to cultural context or historical backgrounds are discussed. This course may be repeated for credit if the topic differs.

3 cr.

MAET 565 Literary Studies—Great Works of American Literature

This course examines major works from the range of American literature, along with a few lesser known works that are important for context. It introduces various tools for fundamental literary analysis.

3 cr.

MAET 566 Literary Studies—Modern American Literature

This course examines works of the second half of the 20th century, with an emphasis on literature from representative American cultural groups.

3 cr.

MAET 567 Literary Studies—Twentieth Century American Poetry

This course introduces students to a representative selection of modern American poetry from the mid 18th century to the present. The course will concentrate on the poetry of Emily Dickinson, Robert Frost, Wallace Stevens, E. E. Cummings, Langston Hughes, T. S. Eliot, Robert Lowell, Sylvia Plath, and Billy Collins. Students will also have the opportunity to explore the works of other poets through oral presentations and written reports and to reinforce knowledge of poetic

techniques as stipulated in the Massachusetts Curriculum Frameworks.

3 cr.

MAET 570 Seminar: Issues in The Teaching of English

The capstone seminar provides students with a broad understanding of contemporary literary theory and with the opportunity to reflect on how their coursework has impacted their teaching. The primary component of the seminar, however, is the production of an article-length piece of literary scholarship. Students work with the instructor and their classmates in developing topics, which may or may not involve pedagogical issues, and in researching and writing their projects. At least half of each class session is held in a workshop format, and the course concludes with the presentation of projects to all MAET students and faculty.

3 cr.

MAET 590-596 Special Topics in MAET

Topics offered depend upon student interests as well as particular interest of instructors. The course is offered as often as faculty time and student interest permit. May be repeated for credit if topic differs.

1-3 cr.

History

HIST 520 Documents of World and American History

This course will explore in depth the topics in world and American history contained in the elementary curriculum in the Massachusetts History Curriculum Framework. The focus of the course will be the reading and analysis of primary sources (documents, images, and material objects) with the aim of aiding teachers in achieving a deeper understanding of the material and methods to integrate it into their teaching and curriculum.

3 cr.

Mathematics

MAMT 540 Calculus Revisited: Theory and Applications

A review of differential and integral calculus from single-variable to multi-variable with an emphasis on theory and applications. Topics include functions, limits, continuity, differentiation, integration, infinite sequences, and infinite series. Technology will be used when appropriate.

3 cr.

MAMT 542 History of Mathematics (Formerly MAMT 560)

Although mathematics can be studied with little or no knowledge of its history, it would be a mistake to believe that history has no place in a mathematics classroom. Understanding how the early Greeks thought about such matters can only enhance the study of geometry. Understanding Book I of Euclid's elements can explain what motivated 19th century mathematicians to consider non-Euclidean geometry. We often ask students to experiment with integers, but rarely tell them that some of the greatest mathematicians became famous because of their work in number theory. Recalling that the origins of probability theory came from a correspondence between Pascal and Fermat regarding a gambling game can enliven the study of probability. This course will examine several of these important contributions from their beginnings and place them in a historical context. The goal of the course is to make mathematics more meaningful to students and teachers because they will have seen mathematics from the moment of discovery.

3 cr.

MAMT 544 Creative Problem Solving in Mathematics (Formerly MAMT 549)

This course will discuss creative problems from all areas of mathematics. Students will learn problem-solving techniques, will combine some of the seemingly disparate parts of the mathematics background, and will gain an appreciation of new areas of mathematics, by looking at some of the fundamental questions that illustrate the key ideas. There will be emphasis on student presentation and analysis of solutions, and students will learn how to present mathematical arguments while developing their mathematical creativity.

3 cr.

MAMT 545 Cryptology

This course presents the history of and the mathematics behind the major developments in cryptography and cryptanalysis over the centuries. Symmetric ciphers such as monoalphabetic, polyalphabetic, and polygraphic are covered, as well as the modern-day public-key cryptosystem known as RSA. Emphasis is placed on gaining a deeper understanding of the mathematics used in these cryptographic methods and of the statistical tools for cryptanalysis.

3 cr.

MAMT 546 Chance (Formerly MAMT 551)

This course focuses on quantitative literacy, using current events and how these events are reported in the media to examine fundamental statistical and probabilistic concepts. The goal of this course is to make us more informed, critical readers of current news stories, and to promote a deeper understanding of the probability and statistics that we are exposed to in everyday life. Potential current event topics include interpreting polls (including margin of error), scoring streaks, lotteries and randomness, medical research, false positives, economic indicators, statistics in the courtroom, and cancer clusters. To understand these topics fully, students will be learning aspects of graphical descriptive statistics, confidence intervals, probability, measures of central tendency and dispersion, basic combinatorics, hypothesis testing, conditional probability, sampling, correlation, linear regression, and more.

3 cr.

MAMT 548 What is Mathematics?

This course considers some of the greatest ideas of humankind—ideas comparable to the works of Shakespeare, Plato, and Michelangelo. The great ideas that will be explored are within the realm of mathematics. What is mathematics? Mathematics is an artistic endeavor which requires both imagination and creativity. Students will experience what mathematics is all about by delving into some beautiful and intriguing issues in such areas as topology, number theory, analysis, logic, graph theory, and probability. Although students will be challenged, the overriding theme of the course is to gain an appreciation for mathematics, to discover the power of mathematical thinking, and to have each student realize his or her own individual answer to the question “What is mathematics?”

3 cr.

MAMT 550 Discrete Mathematics

This is an introduction to mathematical thinking with emphasis on finding patterns, making conjectures, and learning methods to solve problems and prove theorems. The topics include sets, relations, functions, the language of mathematics, exploration and proof, mathematical induction, cardinality, algorithms, and recursion.

3 cr.

MAMT 552 Geometry Revisited

Most of us have studied the geometry of Euclid in a single secondary school course, but many

new ideas have sprouted since his time. New topics will include transformations, isometrics, and vectors. Selected classical topics of angle measurement, length, area, volume, polygons, circles, spheres, and deductive reasoning will also be included. Breadth and problem solving will be emphasized over depth and theory.

3 cr.

MAMT 554 Number Theory

Prerequisite: MAMT 550 or permission of the department. This course explores patterns and relationships between numbers, beginning with basic properties of the integers first encountered in elementary school: even and odd numbers, clock arithmetic, and divisibility tests. Generalizations of these topics, such as modular arithmetic and congruences, will be covered, along with such topics as the Euclidean algorithm, prime factorization, the greatest common divisor, linear Diophantine equations, the Chinese Remainder Theorem, and Euler's phi-function.

3 cr.

MAMT 556 Graph Theory

Prerequisite: MAMT 550 or permission of the department. This course is a survey of the theory of graphs and digraphs. Fundamental concepts include paths, cycles, trees, connectivity, matchings, networks, tournaments, planarity, Hamiltonian graphs, Eulerian graphs, and graph coloring. Additional topics and/or applications may be covered depending on interest.

3 cr.

MAMT 558 Statistics

This course introduces statistical thinking in applied settings, with the goal of enabling students to use such thinking in their everyday lives. Topics may include: interpretations of probability, axioms and rules of probability, independence, random variables, distributions, graphical and numerical techniques for presenting data, experimental design, and significance testing. Emphasis is on understanding and interpreting, not on computations. A TI-83 or TI-84 graphing calculator will be used.

3 cr.

MAMT 562 Linear and Matrix Algebra

Prerequisite: MAMT 550 or permission of the department. This course is the study of the topics and techniques of linear algebra. There are many real world problems in engineering, economics, and the sciences that can be reduced to solving systems of linear equations. In the course, we shall consider the problem

of solving linear systems; we shall then study matrices and determinants and the role they play in solving linear systems. Then the course turns to the study of Euclidean n -space and linear transformations, eigenvectors, and eigenvalues. The course will introduce one to mathematical modeling and its role in problem solving, as well as to an axiomatic approach to studying mathematics. Many applications will be considered throughout the course, and a TI-83 or TI-84 graphing calculator will be used extensively.

3 cr.

MAMT 564 Analysis

Prerequisite: MAMT 550 or permission of the department. After the discovery of calculus by Newton and Leibniz in the late 17th century, many advances in the solution of difficult mathematical and physical problems became possible. In the late 19th century and early 20th century, mathematicians attempted to put calculus and the study of real numbers on firmer logical ground. The course will follow that approach, emphasizing the important theorems and proofs that lead to a deeper understanding of the calculus. Topics will include sequences, limits, continuity, differentiation, integration, and the Fundamental Theorem of Calculus.

3 cr.

MAMT 566 Algebraic Structures

Prerequisite: MAMT 550 or MAMT 554 or permission of the department. Elementary algebra consists of sets of real numbers and their operations with properties such as closure, commutativity, associativity, distributivity, inverses, and identity elements. At the more abstract level, algebraic structures called groups, rings, and fields have some, or all, of the same properties. In this course, we will study these algebraic structures from a general point of view, compare different structures, and try to find relationships between them. We will also examine the applications of these structures in mathematics and the applied sciences.

3 cr.

MAMT 568 Mathematical Modeling

This course is an introduction to mathematical modeling. The emphasis will be on learning to analyze a real-world situation or problem, in order to distill from it important information, and to learn mathematical techniques to encode this information in equation form, and then solve the equations, interpreting the mathematical solution back in the real-world

situation. Topics covered will be selected from difference equations, Markov chains, graph theory, regression analysis, and linear programming, as well as other areas depending upon the interests of the students.

3 cr.

MAMT 570 The Mathematics of Symmetry

Prerequisite: MAMT 550 or MAMT 554 or permission of the department. The goal of the course is to learn the rudiments of basic Group Theory through the symmetry of planar designs, both finite and infinite. Emphasis is placed on using pattern and symmetry to motivate properties of groups and on gaining mathematical sophistication by studying and doing proofs about various properties of groups.

3 cr.

MAMT 590-593 Special Topics in Mathematics

Topics offered depend upon student interests as well as particular interest of instructors. The course is offered as often as faculty time and student interest permit. May be repeated for credit if topic differs.

1-3 cr.

Psychology

PSY 501 Principles of Behavior Analysis

This course will orient students to the concepts, processes, and scientific principles of behavior on which the field of applied behavior analysis was founded. Topics of study will include the history and defining features of applied behavior analysis as well as the role of basic principles in producing socially meaningful behavior change (positive and negative reinforcement, punishment, discriminative control of behavior, and motivating operations).

3 cr.

PSY 502 Behavioral Assessment

This course will provide an introduction to key concepts, methods, and ethical considerations associated with behavioral assessment. Course objectives will include teaching students to distinguish between idiographic and norm-referenced assessment approaches, to conduct pertinent behavioral assessments (preference assessments, functional assessments, and skills assessments), and to incorporate assessment outcomes with treatment selection and design in accordance with contemporary best practices in the field of applied behavior analysis.

3 cr.

PSY 503 Behavioral Interventions

This course will prepare students to identify, implement, and maintain effective behavioral interventions in applied settings. Specific objectives will include teaching students to select and implement function-based interventions for the reduction of problem behaviors, skills-based prevention strategies, and a variety of behavioral teaching tactics. Tactics for promoting procedural integrity and facilitating the generalization and maintenance of treatment effects will also be reviewed.

3 cr.

PSY 504 Autism and Related Disabilities

Prerequisite: Acceptance into the Certificate program in Applied Behavior Analysis. The purpose of this course is to provide students with a foundation in etiological, diagnostic, ethical, and treatment-related considerations affecting services for individuals with autism and other disabilities. Topics of study will include current data on causal variables, issues in early identification, and a survey of evidence-based models of treatment, outcome evaluation, and effective systems support for individuals with pervasive developmental disabilities.

3 cr.

PSY 505 Methods of Evaluation

This course will equip students with skills needed to confirm the clinical efficacy of interventions by subjecting them to experimental evaluation using single-subject designs. Students will learn to develop valid and reliable systems for measuring behavior, to display data using popular and accessible graphing software, and to assess for orderly changes in behavior through visual inspection and interpretation of graphic data.

3 cr.

PSY 506 Evidence-based Teaching

This course will provide students with a comprehensive review of empirically-supported behavioral teaching procedures for individuals with autism and related disabilities. Topics will focus on teaching skills in a variety of content areas such as language, social, and self-help. Procedures for teaching these include, match-to-sample discrimination training, task analysis, as well as prompting procedures including prompt fading and video modeling.

3cr.

PSY 507 Theoretical Foundations

This course will provide students with a comprehensive review of the theoretical

foundations of radical behaviorism and the history of behaviorism in psychology. The primary focus will be to outline the fundamental underpinnings of science of the individual. Students will be exposed to Skinner's theoretical writings, which will be compared and contrasted with contemporary conceptualizations of complex human behavior.

3 cr.

PSY 508 Verbal Behavior

This course will expose students to the basis for a functional analysis of human language with an emphasis on application. Topics will include the elementary verbal operants, the ways in which verbal behavior is established, the relevance of the behavior of the listener, and the organization of verbal behavior. Focus will be placed on the use of an analysis of verbal behavior in addressing socially significant problems.

3 cr.

PSY 510 Thesis Research

This course will provide the structure for conducting, writing, and presenting thesis research. Students will meet individually with the thesis advisor and will attend a general research meeting at least monthly. Formal presentation and discussion of the dissertation research will take place during these research meetings.

3 cr.

PSY 511 ABA Practicum I

Prerequisite: Acceptance into the Certificate program in Applied Behavior Analysis. This practicum will involve at least 10 hours per week of work in a supervised clinical practice, educational, or research setting in which procedures based on behavior-analytic principles are implemented. Students will be supervised by a Board Certified Behavior Analyst, and supervision will consist of bi-weekly observations and weekly 1:1 or group meetings consisting of review of clinical cases, discussion of practice-related topics, and performance feedback.

2 cr.

PSY 512 ABA Practicum II

Prerequisite: Acceptance into the Certificate program in Applied Behavior Analysis. This practicum will involve at least 10 hours per week of work in a supervised clinical practice, educational, or research setting in which procedures based on behavior-analytic principles are implemented. Students will be supervised by a Board Certified Behavior

Analyst, and supervision will consist of bi-weekly observations and weekly 1:1 or group meetings consisting of review of clinical cases, discussion of practice-related topics, and performance feedback.

2 cr.

PSY 513 ABA Practicum III

Prerequisite: Acceptance into the Certificate program in Applied Behavior Analysis. This practicum will involve at least 10 hours per week of work in a supervised clinical practice, educational, or research setting in which procedures based on behavior-analytic principles are implemented. Students will be supervised by a Board Certified Behavior Analyst, and supervision will consist of bi-weekly observations and weekly 1:1 or group meetings consisting of review of clinical cases, discussion of practice-related topics, and performance feedback.

2 cr.

PSY 514 ABA Practicum IV

Prerequisite: Acceptance into the Certificate program in Applied Behavior Analysis. This practicum will involve at least 10 hours per week of work in a supervised clinical practice, educational, or research setting in which procedures based on behavior-analytic principles are implemented. Students will be supervised by a Board Certified Behavior Analyst, and supervision will consist of bi-weekly observations and weekly 1:1 or group meetings consisting of review of clinical cases, discussion of practice-related topics, and performance feedback.

2 cr.

PSY 520-PSY 528 Supervised Practicum in ABA

This practicum will involve at least 10 hours per week of work in a supervised clinical practice, educational, or research setting in which procedures based on behavior-analytic principles are implemented. Students will be supervised by a Board Certified Behavior Analyst and supervision will consist of bi-weekly observations and weekly 1:1 or group meetings consisting of review of clinical cases, discussion of practice-related topics, and performance feedback.

1 cr.

PSY 560 BACB Exam Preparation

This course will review the BACB task list and knowledge areas and provide practice opportunities for the Behavior Analyst Certification Board (BACB) exam.

1 cr.

PSY 590 Special Topics in Applied Behavior Analysis

This seminar will conduct an in-depth review of a current topic in Applied Behavior Analysis. Topics may include but are not limited to: social development, behavioral pharmacology, ethical and professional issues, stimulus control, behavioral therapy.

3 cr.

PSY 610 Professional Issues, Ethics, and Research Design

Prerequisite: Acceptance into Ph.D. program. This course will (a) introduce students to the expectations of students within the doctoral program at Western New England University, (b) bring students into contact with the values and rules of behavior analysis and psychology through primary and secondary source writings on ethics and professional issues (e.g., submitting or reviewing original research), (c) allow students to apply these value systems to their own clinical, educational, and research endeavors via class discussion, (d) review the institutional review board processes and human subjects research guidelines, and (e) review the logic and ethical application of single-subject and traditional group designs.

3 cr.

PSY 620 Experimental Analysis of Behavior

The course will provide the student with a thorough review of the development of the experimental analysis of behavior beginning with Watson and Skinner and continuing into the present. The focus will be on understanding the development of the field in elucidating general principles of behavior (e.g., reinforcement, extinction, shaping, respondent-operant interactions, discrimination, generalization, punishment and aversive control, etc.), paying particular attention to experimental and applied interactions.

3 cr.

PSY 630 Descriptive and Inferential Statistics

Prerequisite: Acceptance into Ph.D. program. This course will focus on interpretation and application of descriptive and inferential statistical techniques required for an understanding of data presentations in psychological research. The primary focus will include: measures of central tendency and variability; frequency distributions and graphical presentations; the normal curve; probability theory; hypothesis testing; the t-test, analysis of variance (ANOVA),

multivariate analysis of variance (MANOVA), multiple regression, and correlation.

3 cr.

PSY 640 Quantitative Analysis of Behavior

Prerequisite: PSY 630. The course will provide an introduction to the use of quantitative analysis in behavior analytic research and clinical practice. Topics will include statistical inference in behavior analysis; visual vs. statistical analysis; hypothesis testing; effect size, power, and non parametric tests; and quantitative models of common behavioral phenomena. (e.g., choice, matching law, molar vs. molecular analyses).

3 cr.

PSY 650 The Philosophy of Behaviorism

Prerequisite: PSY 620. Behaviorism is the philosophy of the scientific approach to the study of behavior, including verbal behavior and private events. The approach holds that all behavior is a function of the interactions of ontogenic and phylogenic variables rather than hypothetical structures. This course focuses on the philosophies of methodological, radical, and cognitive behaviorism. The primary focus is on B.F. Skinner, his conceptual works, and his major critics.

3 cr.

PSY 705 Early Intensive Behavioral Intervention

Prerequisite: Acceptance into Ph.D. program. This course will focus on current research and practice in early intensive behavioral intervention (EIBI) for autism and related disorders. Best practices and evidence-based approaches will be identified and reviewed. Attention will also be paid to effective preschool design, home-based intervention for common pediatric problems, and factors influencing successful inclusion of children with disabilities in typical classrooms.

3 cr.

PSY 720 Assessment of Severe Behavior Disorders

Prerequisite: Acceptance into Ph.D. program. A brief overview of each of the three functional assessment methods currently in use will be covered (indirect or anecdotal methods, descriptive analysis, and functional analysis). After reviewing the defining characteristics, major procedural variations, strengths and weaknesses of each approach, the course will examine current research involving modifications and extensions of current

functional analysis methodology and function-based interventions.

3 cr.

PSY 735 Organizational Behavior Management

Prerequisite: Acceptance into Ph.D. program. This course examines individual human behavior in organizations. The objective of this course is to teach students how to analyze organizational behavior and performance improvement techniques from a behavioral perspective; as well as to learn about common Organizational Behavior Management (OBM) and Performance Management techniques to improve performance in organizations. Topics include: the history of OBM, performance appraisal, performance diagnosis (measurement and assessment), behavioral systems analysis/metacontingency analysis, feedback, goal setting, rewards and monetary incentives, and the relationship between job satisfaction and performance.

3 cr.

PSY 740 Developmental Psychology

Prerequisite: Acceptance into Ph.D. program. This course will survey the history, philosophies, and theories of typical and atypical development with particular emphasis on early-childhood through young adulthood. The role of organismic and environmental variables in the development of motor, perceptual, social, emotional, and cognitive behavior will be-examined. The relation between development and education will also be covered.

3 cr.

PSY 750 Advanced Verbal Behavior

Prerequisite: PSY 620. This course will review the conceptual and empirical foundations of a functional-analytic approach to human language and cognition. This approach represents the underpinnings of a scientific analysis of language. Research on the elementary verbal relations, generative language, symbolic behavior, grammar and syntax, as well as applied research on language training will be discussed.

3 cr.

PSY 770 Teaching in the College Environment

Prerequisite: Acceptance into Ph.D. program. This course will focus on practical issues and methods for teaching in the college environment. It will focus on selection and use of teaching materials; course structure and development of instructional sequences;

the role of lecture, discussion, and active participation; student evaluation and grading practices; and student motivation.

3 cr.

PSY 790 Special Topics in Behavior Analysis

Prerequisite: PSY 620. This seminar will conduct an in-depth review of a current topic in applied or experimental analysis of behavior. Topics may include: social skills and play behavior, joint attention, behavioral pharmacology, stimulus control and stimulus equivalence, relational frame theory, behavioral counseling, or behavioral medicine.

3 cr.

PSY 801-809 Behavior Analysis Practica

This supervised practicum experience will involve at least 20 hours per week of field work in a supervised clinical practice, educational, or research setting in which procedures based on behavior-analytic principles are being implemented.

1 cr.

PSY 851-856 Dissertation Research

Prerequisite: PSY 610. This course will provide the structure for designing, conducting, writing, and presenting dissertation research. Students will meet individually with the dissertation advisor and will attend a general research meeting at least monthly. Formal presentation and discussion of the dissertation research will take place during these research meetings.

3 cr.

PSY 857 Dissertation Research Continuance

Prerequisite: PSY 856. This course will provide the structure for designing, conducting, writing, and presenting dissertation research. Students will meet individually with the dissertation advisor and will attend a general research meeting at least monthly. Formal presentation and discussion of the dissertation research will take place during these research meetings. This course is for students who have not completed the dissertation requirement prior to earning 54 course credits in the program.

1 cr.

Graduate Courses In Business

Accounting

AC 610 Cost-Based Decision-Making

Prerequisites: AC 309 or AC 630, or their equivalent. This course is an introduction to the aggregation of product costs, managerial

control, performance evaluation, pricing, as well as other contemporary topics, such as balanced score card, EVA, and MVA. Key outcomes include the ability to identify and apply the concepts of cost allocation, target costing and cost plus pricing, capital budgeting analysis, and transfer pricing in global economy.

3 cr.

AC 611 Municipal and Fund Accounting

Prerequisites: AC 201 or its equivalent. This course examines accounting concepts for nonprofit organizations. Key outcomes include an understanding of generally accepted accounting principles as they apply to governmental and municipal organizations, educational institutions, hospitals, and social organizations.

3 cr.

AC 612 Financial Statement Analysis

Prerequisite: AC 201 or the equivalent, FIN 214 or FIN 630, and proficiency with Excel. The objective of this course is to provide hands-on experience in the analysis of financial and non-financial information, including developing understanding of its creation and use within the firm's economic and strategic environments. By the end of the course, students are expected to be well-versed in reading firms' financial statements and understanding how financial statement analysis can be used in a variety of business contexts.

3 cr.

AC 614 Advanced Taxation of Business Entities

Prerequisite: AC 413 or its equivalent. This course examines advanced issues of taxation. Key outcomes include the ability to engage in planning and tax compliance for various tax entities including corporations and partnerships; the determination of tax consequences of distributions to owners of tax entities; and an understanding of reorganizations and liquidations.

3 cr.

AC 620 Advanced Topics in Auditing and Assurance Services

Prerequisite: AC 419 or its equivalent. This course examines the statements on auditing standards issued by the AICPA and PCAOB. Key outcomes include an understanding of the effects of standards on audit reports, and current issues in auditing. Extensive use is made of case analysis.

3 cr.

AC 622 Accounting Theory and Contemporary Issues

Prerequisite: AC 306 or its equivalent. This course is a study of accounting literature. Subjects include accounting research bulletins, opinions of the Accounting Principles Board, statements and interpretations of the FASB, and trends and controversies in accounting theory. Key outcomes include an understanding of the ethical conflicts that arise in public accounting, how controversies are resolved or left unresolved, how standards are promulgated, and the ability to anticipate the affects of changes in accounting standards.

3 cr.

AC 630 Accounting for Decision Makers

Prerequisites: AC 201 or its equivalent and a familiarity with computer-based spreadsheets. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course is directed to the general MBA student and focuses on the accounting information needed to operate effectively in a competitive business environment. It explores the use of such information for planning, controlling, decision-making, and evaluating performance. It integrates the traditionally separate functions of accounting and management for the successful operation of the business entity. Key outcomes include the ability to identify relevant costs for decision making, and to apply standard costing, cost-volume-profit analysis, budgeting, activity-based cost/management, transfer pricing, and performance measurement in decentralized organizations. Quantitative tools, such as regression, are utilized for analysis. Cannot be taken by MSA students.

3 cr.

AC 633 Independent Study

Prerequisite: Permission of the instructor. Provides an opportunity to conduct research in an area of a student's own specific interest. An independent study must be taken with the approval of the MSA Program Director. Submission of a formal proposal is required before such approval will be granted. The expected outcome of an independent study is a paper of a quality that could be presented at a professional conference or submitted for journal publication. This course will carry three credits and may not be repeated.

3 cr.

AC 641 Introduction to Fraud

Prerequisite: AC 306. This course examines the different aspects of fraud: what it is, the types of people more likely to commit it, how to fight

and prevent it, how to recognize and be able to detect its symptoms, and how to investigate it. Methods of fraud inquiry and interviewing are also covered. Key outcomes include the ability to understand the above topics covered.

3 cr.

AC 642 Forensic Accounting

Prerequisite: AC 306 and AC 330. This course focuses on accounting and legal fundamentals for forensic accounting. Key outcomes include the ability to understand computer-aided data analysis techniques for detecting and investigating fraud cases, issues related to the collection and use of digital evidence, and collection of data from electronic devices.

3 cr.

AC 646 Selected Topics in Taxation

Prerequisite: AC 413. This course is a seminar on tax topics of current interest in specialized areas. Key outcomes include the ability, to understand selected topics from international taxation deferred compensation, problems of closely-held businesses, consolidated tax returns, inventory methods transfer pricing, and new developments in taxation.

3 cr.

AC 647 Taxation Research and Writing

Prerequisite: AC 413. This course focuses on preparing students for the LAW 803 and LAW 804 courses taken in the School of Law. LL.M. students have J.D. degrees and have a detailed background in the theory and practice of legal research and written communication. This taxation research and writing class is designed to enable MSA students to develop sufficient proficiency in these areas to successfully complete the two LL.M. courses. Coursework and assignments emphasize tax practice and procedure. This course must be taken prior to LAW 803/804.

3 cr.

AC 680 Accounting Internship

The accounting internship is an opportunity for students to apply accounting theory in real world situations. Research is an integral part of this experience. Expected outcomes include the ability to identify and define a problem, undertake research to determine the context of the problem, and to select and apply the appropriate theory toward its resolution.

3 cr.

AC 690 Special Topics in Accounting

This is a study of advanced topics in accounting.

3 cr.

Business Information Systems

BIS 610 Information Technology Management and Applications

Prerequisite: Graduate standing. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course presents current issues and development trends in utilization and management of information systems in organizations. It examines and explores new paradigms for computer application development and systems design. This course also discusses the impact of information systems and technology on organization structure, strategy, and operations. A variety of computer applications will be introduced. Topics will be selected from spreadsheet modeling, database management, knowledge acquisition and management, data modeling, and E-commerce.

3 cr.

BIS 620 Decision Support Models

Prerequisite: BUS 553. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course introduces spreadsheet-based management science/operations research models in problem solving and business decision analysis. Key learning outcomes include proficiency in spreadsheet applications, problem interpretation, understanding of mathematical nature of models, model building and their application in spreadsheets, interpretation of modeling outcomes, and decision making.

3 cr.

Business Law

BL 621 Law and The Business Entity

This course surveys the law as it applies to business. Key learning outcomes focus on: the legal system; “white collar” crime analysis of employment law; analysis of the business entity; property law; and the protection of ideas and processes (intellectual property).

3 cr.

BL 640 Law for Accountants

Prerequisite: AC 306. This course focuses on the application of business law to both fraud and the legal responsibilities of accountants. Key outcomes include the ability to understand the following topics in law: sales, proprietorships, partnerships, corporations, security regulations, property transactions, secured transactions, wills, trusts, and estates.

3 cr.

BL 690 Special Topics in Business Law

This is a study of advanced topics in business law.

3 cr.

Business

BUS 551 Accounting Principles

This self-study module is designed to cover the basics of financial accounting. The first half of the module covers the accounting cycle including transaction analysis, adjusting entries required under the accrual basis of accounting, and the preparation of the four financial statements. The second half of the module focuses on measurement and reporting issues for cash, accounts receivable, inventory, fixed assets, current liabilities, and equity. Offered on a pass/fail basis.

0 cr.

BUS 552 Finance Principles

Prerequisite: BUS 551. This self-study module is designed to cover the basics of financial management and the capital markets. Topics include financial analysis tools used to evaluate company performance, cash flow analysis and the statement of cash flows, time value of money, valuation techniques for bonds and common stock, and an introduction to the corporate cost of capital. Offered on a pass/fail basis.

0 cr.

BUS 553 Quantitative Methods Principles

This self-study module is designed to cover the basics of statistics. It covers the tools of descriptive statistics—univariate and bivariate. The graphical tools covered are pie charts, bar charts, pareto charts, histograms, and clustered and stacked bar charts. The numerical tools covered are measures of central tendency (mean, median, and mode) and measures of dispersion (range, standard deviation, and variance). In addition, scatter plots and simple linear regression are covered. All tools are implemented in Excel. Emphasis is on the student’s ability to implement the statistical tools in Excel and interpret the results. Offered on a pass/fail basis.

0 cr.

BUS 554 Economics Principles

This self-study module is designed to cover key micro and macro economics concepts. Students study the following micro economic topics: supply and demand, production and costs, and basic market structure. Macro topics include: national income product accounts, Keynesian Cross, and equilibrium

in commodity and financial markets. The goal of the course is the development of critical thinking skills needed in considering economic phenomena and to prepare students for coursework in the MBA program. Offered on a pass/fail basis.

0 cr.

BUS 605 Problem Solving and Decision Making

Prerequisite: Graduate standing. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. In order to provide students with a well-rounded examination of the area, both analytical and intuitive approaches to problem-solving will be examined. There will be coverage of the 'rational' model, wherein alternatives are identified, evaluative criteria determined, measured and weighted according to a decision rule, and a conclusion reached. The shortcomings of this approach will also be addressed, as will alternative models of decision making. More naturalistic and intuitive models will be examined, and findings from psychology research will be integrated throughout in order to highlight the observed strengths and weaknesses of human decision makers in applied contexts.

3 cr.

BUS 610 Business and Its Environment

Prerequisite: Graduate standing. Economics prerequisite or BUS 554. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course examines the social, economic, and political environment facing business and its leaders in the 21st century. Coverage includes the economic dynamics of the global marketplace, demographic trends and their impact on the organization, public policy and regulatory issues, the relationship between business and governments, and the nature of corporate social responsibility. The overall objective of this course is to enhance students' ability to meet the multifaceted challenges facing managers in the contemporary business environment.

3 cr.

BUS 665 Enterprise Consulting Practicum

Prerequisite: MK 640. This course is an interdisciplinary course featuring cross-functional teams of Western New England University School of Law students and College of Business MBA students providing legal and business consulting services to start-up businesses from the local community as well as from the Scibelli Enterprise Center's business incubators at Springfield Technical Community

College (STCC). The Small Business Clinic permits students to gain practical experience in representing and advising business clients. The learning model for this course has two components: an academic component and a clinical component.

3 cr.

BUS 675 Graduate Business Internship

Prerequisite: MBA student with nine credits or less, or permission of MBA director. The graduate business internship is an opportunity for students to apply theories and principles of the business disciplines in a workplace setting. The student will work with a faculty advisor to establish specific internship learning outcomes.

BUS 680 Strategic Management

Prerequisite: AC 630, BUS 610, FIN 630, MAN 600, MAN 610, MK 640, and BIS 620. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course focuses on strategic level analysis of the firm. Key learning outcomes include: the application of corporate and business strategies through environmental analyses based on economic, political, legal, social, global, and internal organizational factors; decision making based on the firm's strategic performance using financial statements, stakeholders satisfaction, and investment decisions; the application and use of functional strategies in implementing corporate and business level strategies; and decision-making based on micro and macro environmental factors influencing the strategic management process. The course makes wide use of case studies in achieving the course objectives.

3 cr.

BUS 685 Graduate Business Internship

Prerequisite: MBA student with less than 9 credits or permission of MBA Director. The graduate business internship is an opportunity for students to apply theories and principles of the business disciplines in a workplace setting: The student will work with a faculty advisor to establish specific internship learning outcomes.

3 cr.

Finance

FIN 617 Investment Theory

Prerequisites: FIN 630. This course is an introduction to the investment process for households and the contractual intermediaries that serve them. Key outputs include the ability to assess the risk and return trade-offs of the major investment alternatives, and the ability

to develop, implement, and explain asset allocation strategies.

3 cr.

FIN 618 Security Analysis and Portfolio Management

Prerequisites: FIN 617. This course is an intermediate study of the investment process that introduces some of the more useful quantitative methods for portfolio management. Key outputs include the ability to apply mean variance, semi variance, duration, and convexity as measures of risk, to measure performance attribution, and to undertake fundamental security analysis at the company and industry level.

3 cr.

FIN 630 Managerial Finance

Prerequisites: AC 630 and BUS 552 or equivalent. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course examines how corporations benefit society by raising funds in the financial markets and employing them in productive activity. Key outcomes include the ability to apply the basic tools of ratio analysis, proforma analysis, time value of money, elementary security analysis, capital budgeting, and working capital management techniques to maximize owner value. Financial structure and capital risk management are also considered.

3 cr.

FIN 650 Advanced Financial Management

Prerequisite: FIN 630 or its equivalent. This course discusses advanced topics in the financial operation of the firm. Conceptual tools are developed and applied to actual case problems faced by financial officers. Key output is the ability to analyze real-world situations where problems and solutions are not obvious and to develop strategies based on the concepts of FIN 630.

3 cr.

Law

LAW 803 Federal Wealth Transfer Taxes

This course is a study of the basic principles of the federal transfer tax system, including estate tax, gift tax, and generation-skipping tax. The topics included in this course are retained interests, powers of appointment, lifetime transfers, life insurance, marital deduction, definition of gift, transfers to revocable and irrevocable trusts, and gifts to minors.

2 cr.

LAW 804 Federal Income Taxation of Estates and Trusts

This course studies the income tax issues for estates, trusts, and beneficiaries. Topics that will be examined include grantor trust rules, simple trusts, complex trusts, distributable net income, distributions in-kind, assignment of income, and income in respect of a decedent.

2 cr.

Management

MAN 600 Leadership

Prerequisite: Graduate standing. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course focuses on the development of leadership and team-related competencies. Key learning outcomes include: concepts of motivation applicable to leadership practices in organizations; appropriate leadership models relevant to life and work; effective team building techniques for organizational success; personal code of ethics; importance of followership to team leadership; importance of diversity to team leadership; and the importance of vision to leadership.

3 cr.

MAN 610 Organizational Behavior and Theory

Prerequisite: Graduate standing. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course examines structural and behavioral factors influencing performance in organizations. Key learning outcomes include: integration of international and cross-cultural variables relating to OB and organizational theory; analysis of the behavioral aspects of existing organizational problems; structural aspects of organizational challenges; the relevance of individual, group, and organizational dynamics; and ethical issues and challenges in organizations.

3 cr.

MAN 630 A Humanistic Approach to Leadership and Management

Prerequisite: Graduate standing. This course is a study of fiction, biography, drama, and film as primary sources to arrive at a better understanding of how ethical and effective leadership and management occur. Key learning outcomes include: increased awareness of the value of literature and film in developing effective leadership and management practices; differences among successful-leadership styles; situational leadership; areas of strength and deficiency in personal leadership styles; humanistic principles in analyzing ethical conflicts in

leadership and management situations; applying leadership/management skills such as initiative, planning, and assessment of calculated risk-taking; effective leadership in decision-making; and decision-making utilizing non-traditional learning sources in everyday leadership opportunities.

3 cr.

MAN 631 Human Resource Management

Prerequisite: Graduate standing. This course considers the management of human resources in an enterprise. Key learning outcomes include: managerial decision-making that recognizes the strategic role of HRM; legal issues associated with HR activities such as selection and compensation; effective hiring practices in training; setting and administration of compensation levels; effectiveness of pay for performance systems; performance appraisal systems; theories of job design; and the motivational impact of jobs.

3 cr.

MAN 633 International Management

Prerequisite: Graduate standing. This course focuses on dynamic changes in international business environments and increased foreign competition that challenge managers. Key learning outcomes include international trade theories; foreign direct investments and barriers to international trade; economic, social, political, and technological issues and their impact on global companies; increased foreign competition and economic integration pacts; cost and benefits of global corporations; strategies and structures of global corporations; cultural and ethical issues related to global corporations; and issues of market expansion.

3 cr.

MAN 640 Management and Conflict Resolution

Prerequisite: Graduate standing. This course provides an overview of the broad range of conflict situations that occur in organizations, including employee-relations issues. Key learning outcomes focus on conflict resolution processes including grievance procedures, alternative dispute resolution (ADR), and other conflict resolution strategies. Managerial practices and current trends are explored.

3 cr.

MAN 642 Organizational Development and Change

Prerequisite: Graduate standing. This course examines the system-wide application of behavioral science knowledge to the planned development, improvement, and reinforcement

of the strategies, structures, and processes that lead to organizational effectiveness. Key learning outcomes include: the nature of planned change, the diagnostic relationship, designing interventions, and leading and managing change.

3 cr.

MAN 651 Ethics in Business

Prerequisite: Graduate standing. This course examines and reflects upon the inevitable moral dilemmas and ethical responsibilities facing business professionals. Learning outcomes include: role of corporate governance; relative needs of stakeholders; arguments from moral philosophy; legal arguments; social and cultural customs; and personal ethical business code.

3 cr.

MAN 690 Special Topics in Management

Topics offered depend upon student interests as well as particular interest of instructors. The course is offered as often as faculty time and student interest permit. May be repeated for credit if topic differs.

1-3 cr.

Marketing

MK 627 International Marketing

Prerequisite: MK 640. This course explores the management of marketing in a global environment. Marketing problems arising from various degrees of foreign involvement are considered. Emphasis is on the management of the marketing functions in a multinational context, i.e., international economic factors, foreign cultures, nationalism, government influence of national labor organizations, and the diverse common markets.

3 cr.

MK 630 Marketing Research Methodologies

Prerequisite: MK 640 and BIS 620. This course includes examination, application, and utilization of quantitative research techniques to marketing problems and processes.

3 cr.

MK 632 Development and Marketing of New Products

Prerequisite: MK 640. This course is designed to help the student appreciate the diverse environmental, managerial, and promotional aspects of product problems with emphasis on innovation in the product management process.

3 cr.

MK 634 Channels of Distribution Management

Prerequisite: MK 640. This course involves the study of the management of channels of distribution. The application of concepts in an interorganizational setting is explored in both industrial and consumer goods' channels. "Place" strategy analysis is presented as part of the mainstream of marketing problem solving and decision making.

3 cr.

MK 636 Business to Business Marketing

Prerequisite: MK 640. This course studies the application of the marketing mix to the development of marketing strategy by firms selling to business markets, and by marketing intermediates marketing products to industrial users. The role of differentiation, pricing policy, service, and promotion in implementing the industrial marketing mix is emphasized.

3 cr.

MK 638 Marketing Planning and Strategy

Prerequisite: MK 640. This course is an in-depth study of decision-making in marketing from the position of the chief marketing executive of a company or of a division of a large corporation. Emphasis is given to strategic marketing planning, managerial analysis of the marketing environment, market opportunity evaluation, and the design of marketing plans and programs consistent with the objectives of the organization and integrated with other functional segments of the enterprise.

3 cr.

MK 640 Marketing Management

Prerequisite: BUS 605. Must be MBA, MBASP, MSA, MSATX, or MSAFF student. This course explores marketing management issues that challenge managers in today's organizations. The course focuses on the analysis, planning, and decision-making processes required of marketing managers to develop successful marketing plans and strategies. Interactive case studies and/or computer simulations are used to provide a dynamic learning environment. Topics studied include customer and competitor analysis, technological and regulatory issues, marketing plan development, product development, pricing decisions, promotion strategy, and distribution management. The course also integrates current issues facing businesses today including e-commerce, international, and ethics topics.

3 cr.

MK 642 Electronic Marketing: Issues and Strategies

This course studies electronic and Internet marketing. Electronic marketing is more than just creating a web page and selling merchandise online. It consists of a variety of tools and strategies that are new to many businesses. The course begins with a discussion of business process analysis in the effort to reorient a company's business processes to be customer value focused. From there strategies will be discussed for businesses seeking to enter the electronic commerce market. Discussions of current events and hot topics relevant to the e-economy will be on going throughout the semester.

3 cr.

Sport Management

SPMN 670 The Business of Sport

Prerequisite: MBA Sport major or permission of instructor. This course explores the variety of sport segments that make up the sport industry and focuses on the application of management concepts and theories to sport organizations. Theory and practice related to the development of sustainable business models in the sport industry are presented. Current issues related to the sport industry are explored.

3 cr.

SPMN 671 Sport Law

Prerequisite: MBA Sport major or permission of instructor. This course will examine legal issues related to the management of sport organizations. Legal principles for amateur and professional sport will be explored. Issues related to contract, tort, and labor law will be examined. Topical areas include NCAA regulations, Title IX, disability law, drug testing, collective bargaining, antitrust, trademark, and arbitration. Emphasis will be placed on the legal aspects of business development in sport organizations.

3 cr.

SPMN 672 Sport Marketing: Promotions and Sales

Prerequisite: MBA Sport major or permission of instructor. This course will examine strategic marketing in the sport business context. Theories and application of sport brand building, sport consumer behavior, sales, promotion, sport research, and relationship dimensions will be explored. Ticket sales theory, athlete endorsements, corporate sponsorship development/measurement, and media and community relations programs will

be discussed. Sport marketing principles will be examined from the perspective of the sport business and will be analyzed as an effective strategic vehicle for nonsport corporations and brands through licensing, merchandising, events, and partnership programs.

3 cr.

SPMN 673 Internship/Consulting Practicum

Prerequisite: MBA Sport major or permission of instructor. This course provides the student with the opportunity to gain hands-on experience in sport management through a consulting project or internship with a sport organization. The course is designed to allow the student to apply theoretical knowledge to the practice of sport management. The student will work with a faculty advisor to establish specific project/internship learning outcomes that center on organizational performance, quality management, and professional development.

3 cr.

Graduate Courses In Engineering

Computer Engineering

CPE 620 Advanced Computer Architecture

Prerequisite: CPE 420 or permission of instructor. This is an advanced study of computer architecture. Topics may include stack computers, pipeline computers, parallel computers, micro-programming, performance evaluation, and distributed processing.

3 cr.

CPE 625 Advanced Software Engineering

Prerequisite: CPE 425 or equivalent. This course introduces advanced topics in software system design, construction, and maintenance: Students learn about approaches to incorporating new features in legacy systems, as well as reverse engineering in systems lacking sufficient documentation. The use of components is stressed as a means of isolating and extending existing systems. Students participate in a semester long team project.

3 cr.

CPE 635 Advanced Requirements Analysis

Prerequisite: CPE 435 or equivalent. This class examines advanced topics associated with system requirements. Approaches to automated requirements writing are explored. Approaches to formal methods used in specifying requirement are studied. Automated

approaches to verifying, validating, and detecting ambiguity, as well as implementing requirements in delivered software are examined. Models employed in requirements engineering will be examined.

3 cr.

CPE 645 Embedded Software Systems

Prerequisite: CPE 442 or equivalent and CPE 601 or equivalent. Students learn modern methods, techniques, and tools for the specification, design, and implementation of real-time embedded systems. Students are given an overview of various platforms and automated tools for developing software for embedded systems. Processes used in the development of systems with real-time performance are introduced. Issues associated with real-time debugging are introduced.

3 cr.

CPE 648 Software Project Management

Prerequisite: CPE 435 or equivalent. Students learn about the issues associated with managing a software project. Students learn about the importance of establishing project scope and eliciting requirements. A detailed analysis of project planning will be conducted with emphasis on planning, estimating, scheduling, risk analysis, tracking, and control. Various approaches to managing software projects will be studied at the critical level.

3 cr.

CPE 650 Software Architecture

Prerequisite: CPE 425 or equivalent and CPE 601 or equivalent. This course introduces students to architectural design. Students learn how to structure data and components in order to satisfy requirements of a design. Students learn about architectural styles that a solution may utilize. Students also study the structure and interrelationships among the architectural components. Alternative solutions are considered and evaluated. The role of architecture as a facilitator for communication between designers and stakeholders is emphasized. Metrics to assess architectural quality are introduced.

3 cr.

CPE 652 Software Generation and Maintenance

Prerequisites: CPE 425 or equivalent and CPE 601 or equivalent. Students learn effective approaches to designing systems that are easier to maintain after their initial release. Maintenance accounts for some 70 percent of a software system's life cycle. Designing new maintainable software systems is as important

as dealing with existing legacy systems. Students are introduced to writing reusable software components, automatic code, and application generators, as well as their limitations, regression analysis, and reverse engineering.

3 cr.

CPE 655 Computer Network Architecture

Prerequisite: Graduate standing. This is a comprehensive study of the way computer networks are designed and operated focusing on basic principles that guide the development of computer networks, e.g., management of complexity, standardization of connectivity, and resource sharing. Seven textual models such as IEEE 802, DOD, TOP, MAP, and ISDN are briefly covered.

3 cr.

CPE 690 Special Topics

This is a study of an advanced topic in engineering of special interest to computer engineering majors, but not carried in the catalogue on a regular basis.

3 cr.

Electrical Engineering

EE 601 Advanced Electrical Engineering Analysis

Prerequisite: MATH 350 or equivalent or permission of instructor. This course presents the underlying analysis techniques necessary for advanced study in electrical engineering. Topics include vector spaces, parametric equations, linear algebra, systems of differential equations, Fourier transforms, and the theory of functions of a complex variable including Taylor and Laurent series and residues and poles.

3 cr.

EE 614 Advanced Electromagnetics

Prerequisite: EE 314 or equivalent. This is a study of the microscopic and macroscopic properties of magnetic and insulating materials. Topics include gyromagnetism, permeability tensor, reflection and refraction, skin effect, antenna analysis, and relativistic electrodynamics.

3 cr.

EE 615 Antenna Theory and Design

Prerequisite: EE 457 or equivalent. The course introduces the fundamental principles of antenna theory and applies them to antennas used in wireless communications systems and other advanced antenna systems. Topics include: an introduction to EM wave equations and their solutions in unbounded space as

plane and spherical waves; EM radiation; antenna concepts such as radiated power, gain, pattern, and radiation resistance; basic antenna elements including dipoles, loops, microstrip antennas, and traveling-wave antennas; antenna arrays; microwave aperture antennas; and receiving antenna theory.

3 cr.

EE 616 Introduction to Numerical Electromagnetics

Prerequisite: EE 614. Introduction to numerical methods in electromagnetics including finite difference, finite element, and integral equation; methods for static, harmonic, and time dependent fields; use of commercial software for analysis and design purposes; and applications to open and shielded transmission lines, antennas, cavity resonances, and scattering.

3 cr.

EE 621 Coherent Optics

Prerequisite: EE 601 and EE 314 or equivalent. Modern optical techniques rely heavily on the analysis of the coherent properties of light and the Fourier transform to explain the diffraction and interference associated with optical wave propagation and image formation. Beginning with a review of basic electromagnetic wave principles and Maxwell's equations, students develop an understanding of those modern optical techniques used to analyze coherence, polarization, interference, and diffraction. A study of light quanta and optical spectra leads to an understanding of laser operation, and throughout the course, theoretical analysis is supplemented with discussions of such applications as holography, optical data processing, optical sensing, fiber lasers, and other current topics. A design project is required. Upon completion of the course, students should be able to understand the theory and analysis techniques used in modern optical systems and develop some proficiency in the design and implementation of simple optical systems for applications. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, design projects, and a final exam.

3 cr.

EE 625 Stochastic Processes - Kalman Filters

Prerequisite: EE 425 or EE 470. This course covers the basic principles of stochastic processes and control systems. Students learn and review summary state space

representations for continued and discrete systems, random variables, and processes. In addition they learn random processes, moments of random processes, and statistical properties of outputs of stochastic systems as well as analysis and design of Kalman filters. Students also learn to use MATLAB computational software to understand new concepts and to perform and implement system analysis and design techniques. The methods of assessing student learning in this course are homework assignments, classroom discussions, design projects, and a final exam.
3 cr.

EE 650 Advanced Digital Signal Processing

Prerequisite: ENGR 212 or IE 212; EE 485 or equivalent. This is an advanced study of digital signal processing and its applications to speech, radar, and image processing. Topics include least squares filter design, adaptive filters, time, and frequency-domain analysis of two-dimensional (2D) signals and systems; 2D DFT and Z-transform; theory and design of 2D filters; homomorphic signal processing; and spectral estimation. Some computer programming and simulation required.
3 cr.

EE 667 Advanced Electrical Materials

Prerequisite: EE 312, EE 302, EE 314, or equivalent. This is a study of electrical materials. Topics include crystal structure of solids, quantum theory and mechanics of solids, semiconductor physics, magnetic theory and materials, modern devices, integrated electronic materials and devices, and materials and devices for direct energy conversion. A design project is required.
3 cr.

EE 670 Optimal Control Systems

Prerequisite: EE 425 or permission of instructor. Students learn the basic principles of optimal control theory. They also learn minimum time, minimum control effort, terminal control, tracking, and regulator forms of performance measures as well as calculus of variations, and the variational approaches including linear regulators and the Pontryagin's minimum principle methods as applied to the optimal control theory. In addition students learn about regulators and tracking problems. They also learn to use MATLAB computational software to understand new concepts and to perform and implement optimal control analysis and design techniques. The methods of assessing student learning in this course are homework

assignments, classroom discussions, design projects, and a final exam.
3 cr.

EE 685 Electrical Engineering Project

Prerequisite: EMGT 605 or EMGT 648 and 12 credit hours minimum in the program. Students must select a project faculty advisor and obtain topic approval prior to registration for this course. This is an independent engineering project under the supervision of a project faculty advisor. The design process is emphasized. Progress reports and a final written report are required. An oral presentation and defense of the project is made before a faculty committee.
3 cr.

EE 690 Special Topics in Electrical Engineering

This is a study of an advanced topic in engineering of special interest to electrical engineering majors, but not carried in the catalogue on a regular basis.
3 cr.

EE 698-699 Thesis Research

This is a research course open to electrical engineering graduate students who have completed requirements for admission to candidacy for the master's degree. Prior to registration, written permission to enroll must be obtained from the student's advisor.
6 cr.

Engineering Management

EMGT 605 Engineering Management

Prerequisite: Graduate standing. This is a study of the major management functions of the firm with emphasis on engineering and research. Topics include organization, planning, coordination, and control of operations; corporate objectives; managerial decision-making; human relations; and product development.
3 cr.

EMGT 607 Quality Engineering

Prerequisite: Graduate standing. This course covers the fundamental concepts of quality management including the management philosophy underlying BIS. Product quality and care of customers, management leadership, teamwork, constant improvement and innovation, and the influence of human performance in product quality and inspection are included.
3 cr.

EMGT 609 Engineering Cost Analysis

Prerequisite: Graduate standing. This is a study of the economic aspects of engineering decisions. Topics include comparison of alternatives in engineering programs and economic factors in selecting and replacing machinery, equipment, and structure.

3 cr.

EMGT 615 Statistical Quality Control

Prerequisite: ENGR 212 or IE 212, or permission of instructor. This is an overview of popular statistical methods as applied to quality assurance. Topics include a review of data analysis and hypothesis testing, coverage of statistical process control (variable and attribute control charts), process capability analysis, and acceptance sampling (lot-by-lot and continuous).

3 cr.

EMGT 619 Engineering Supply Chain

Prerequisite: Graduate standing. Companies are continuously working towards aligning their operations with supply chain management solutions. This course will cover the theory, principles, and implications of supply chain management and is intended to provide students with an understanding of the strategic and tactical elements of supply chains. Topics covered include supply chain networks and design, planning supply and demand, inventory management, managing uncertainty, transportation issues, financial factors, and coordination. The focus of the class is both theoretical and practical and will include case studies.

3 cr.

EMGT 620 Multi-Criteria Decision Analysis

Prerequisite: ENGR 212 or IE 212 or equivalent. This is a study of techniques of mathematical formulation, analysis, and solution of technical management problems and the interpretation of results. Computer applications are included.

3 cr.

EMGT 622 Lean Production Systems

Prerequisite: Graduate standing. This is a study of the problems, analytical techniques, and recent developments that relate to the traditional production systems and lean production systems. Topics include forecasting, inventory control, production planning, scheduling, and the relationships between manufacturing and other functions of the firm. Emphasis is on pull/demand based production systems.

3 cr.

EMGT 624 Engineering Management Information Systems

Prerequisite: Graduate standing. This is an overview of computerized systems for information handling and reporting including spreadsheets, database systems, and graphics. Emphasis is on development, installation, and control of information systems for production and operational managers. Hands-on experience is provided using popular personal computer software.

3 cr.

EMGT 626 Computer Simulation of Engineering/Business

Prerequisite: FORTRAN or BASIC; ENGR 212 or IE 212 or equivalent. This is a study of the computer simulation applied to queuing networks, inventory and production control, and material handling systems.

3 cr.

EMGT 627 Legal Aspects of Engineering

Prerequisite: Graduate standing. This is a study of legal concepts useful to the engineering manager. Topics include a general background of the law, contract law, patent law, trade secrets, employment contracts, product liability law, and other legal issues of interest to engineers.

3 cr.

EMGT 629 Advanced Manufacturing Engineering Systems

Prerequisite: Graduate standing. This is a study of manufacturing systems techniques with special emphasis on cost estimating, automation, group technology, expert systems, flexible assembly, cellular manufacturing, and other related special topics.

3 cr.

EMGT 637 Ergonomics and Occupational Safety

Prerequisite: Graduate standing. This is a study of research related to the interface of human beings and machines. Topics include human factors, product and equipment design, capabilities and limitations of the human sensory-motor system, design of displays, and interaction between individual groups and machine systems.

3 cr.

EMGT 640 Energy Management

Prerequisite: EMGT 609 or equivalent. This is an examination of energy cost and its impact on technical and management approaches to conservation programs. Topics include energy reduction in electrical and thermal systems;

heating, ventilation, and air conditioning systems; and methods of initiating and managing an effective conservation program.
3 cr.

EMGT 642 Engineering Materials

Prerequisite: Graduate standing. This course will explore the impact of engineering materials on the design, development, and manufacture of consumer and producer goods. Fundamental information on the interrelationship of the processing, properties and structure of metals, polymers, ceramics, and composites will be presented. A systematic approach will be employed to select engineering materials based on the mechanical and physical properties necessary to meet the need and/or design requirements. Optimization of the material selection process will also consider factors such as shape, function, manufacturing processes, and sustainability. Case studies and team projects will focus on materials selection and knowledge of materials science. The students completing this course will have useful solutions to standard problems in industry and a working knowledge of the materials selection. The methods of assessing students include homework, quizzes, a midterm exam, design project report(s), and a final exam.
3 cr.

EMGT 643 Design of Experiments

Prerequisite: EMGT 212 or IE 212 or equivalent. This is an overview of statistical methods for design of products and processes. Topics include experimental design and analysis, regression analysis, robust design, and Taguchi's methods. Currently popular methods are surveyed.
3 cr.

EMGT 644 Quality Systems and Process Improvement

Prerequisite: Graduate standing. This is a quantitative course covering an analysis of quality system structures in industry today and the process improvement tools used in quality systems. Process and quality tools such as SPC, Gage R & R, ISO 9000, 6 Sigma, benchmarking, and the Malcolm Baldrige National Quality Award are studied. The course is based on applications of these quality principles.
3 cr.

EMGT 645 Quantitative Models of Supply Chain Management

Prerequisite: EMGT 619. This course will look at both fundamental and newer models in supply chain management. Topics covered include inventory theories under uncertainty,

supply chain contracting and coordination, risk pooling, and stochastic decision-making.
3 cr.

EMGT 647 Facility Planning

Prerequisite: Graduate standing. This is a study of techniques for facility location, design, and planning. Other related topics include materials handling, warehousing, computer-aided designs, and maintenance considerations.
3 cr.

EMGT 648 Project Management

Prerequisite: Graduate standing. This course examines project techniques which place emphasis on organizational and behavioral issues. It provides hands-on project management experience developing project plans with the use of computer software.
3 cr.

EMGT 650 Systems Integration

Prerequisite: Graduate standing. This course is an introduction to the relevant issues and required techniques for successful systems design development, integration, management, and implementation. The principles and methods for system lifecycle analysis, system planning and management, systems integration, and strategic decision-making will be covered in this course. The interfaces between the system, subsystems, the environment, and people will be part of the course materials. Students will learn the factors to control the total system development process designed to ensure a high quality and effective system.
3 cr.

EMGT 680 Engineering Project

Prerequisite: EMGT 605 or EMGT 648 and 12 credit hours minimum in the program. Students must select a project faculty advisor and obtain topic approval prior to registration for this course. This is an independent engineering project under the supervision of a project faculty advisor. The design process is emphasized. Progress reports and a final written report are required. An oral presentation and defense of the project is made before a faculty committee.
3 cr.

EMGT 690 Special Topics in Engineering Management

This is a study of an advanced topic in engineering of special interest to engineering management majors, but not carried in the catalogue on a regular basis.
3 cr.

EMGT 698-699 Thesis Research

This is a research course open to engineering management graduate students who have completed requirements for admission to candidacy for the master's degree. Prior to registration, written permission to enroll must be obtained from the student's advisor.

6 cr.

Mechanical Engineering**ME 610 Measurement Systems**

Prerequisite: ME 320, ME 435, or equivalent. This graduate course is offered to mechanical engineering majors and is designed to familiarize students with electronic instrumentation and mechanical measurement techniques. Students will be able to make accurate and meaningful measurements of mechanical and thermal quantities such as strain, force, displacement, torque, pressure, velocity, acceleration, flow, volume flow rate, and temperature. Signal conditioning and data collection and reduction techniques are presented and the use of PC based data acquisition and control systems for automated data collection are emphasized. Case studies of practical significance or related to innovative sensor design and implementation are discussed and demonstrated. Each student will conduct an independent design project related to an area of mechanical testing or measurement and submit a final written report. The method of assessing students includes examinations, the project report, and a final exam.

3 cr.

ME 619 Experimental and Analytical Stress Analysis

Prerequisites: ME 208, MATH 350, ME 435, or equivalent. This advanced course builds on the material presented in Mechanics of Materials course and develops the students ability to apply the principles of advanced mechanics of materials to problem solving while applying common experimental techniques for solution verification. The analytic studies will allow students to determine shear centers of composite sections; determine stresses and deflections of curved beams and beams on elastic foundations; determine deflection and slope in beams using Castigliano's theorem; determine stresses in thick walled cylinders; and determine stresses in initially curved and eccentrically loaded columns. The experimental studies include the basic theory and installation techniques of electric resistance strain gauges, photoelastic coatings,

and applications of load and deflection measuring techniques. Applications of these techniques in the verification of analytical solutions is emphasized throughout the course. A project involving the use of analytical and experimental verification methods is required. Methods of assessing students include homework assignments, laboratory reports, quizzes, a midterm, and a comprehensive final exam.

3 cr.

ME 620 Applied Mechanical Design

Prerequisite: ME 425 or equivalent or permission of instructor. This graduate level course is offered to engineering graduate students who have taken an undergraduate course in machine design. The course is conducted entirely off campus using the Internet and conference calling as the primary modes of delivery. The course is designed to build on concepts introduced in a senior level undergraduate machine design course and utilizes a series of design projects which apply the design theory presented in class. Topics include theories of static and fatigue failure; statistical techniques used to predict component reliability; extension, compression, and torsion spring design for static and fatigue loading; roller contact bearings and lubrication; clutches and brakes; and flexible drive systems. Design of complex components and assemblies, and the development of engineering product specifications is introduced, and the impacts of social, economic, and material constraints on the design process are also considered. The methods of assessing students include a midterm and a final examination, and a number of machine design projects. A substantial final design project will be required by all students. Students will use advanced design principles to design and build a scale model which will be tested for performance. Testing of the model will be captured using avi files which will be submitted via *Manhattan*.

ME 626 Applications of Advanced Fluid Mechanics

Prerequisite: ME 303, ME 316, and graduate standing. This course covers a practical, hands on approach to applying complex fluid dynamic principles to solving real life problems, and to the development of new and novel products. Classical theory from Kuchemann, Prandtl, Schlichting, and Shapiro are used to introduce fluid concepts, fluid flow, vorticity, boundary layers, vortex motion, lift

forces, and acoustic waves. These concepts are combined using potential flow, control volume analyses, and conservation principles to solve real life engineering problems. Discussions and engineering problem solving sessions will be an integral part of the classroom learning experience. Applications discussed will include throwing a curve ball, using wing surfaces as a means to gain mechanical advantage, using ejectors as thrust augmentors, and using torroidal vortices as self propelling fluid carriers. Case studies will include a Sikorsky UAV, Stage III Technologies ALMEC exhaust noise suppressor, and FloDesign's RAP nozzle. The methods of assessing students include homework, quizzes, examinations, classroom discussions, a design project, and a final exam.

3 cr.

ME 632 Fundamentals of Flight

Prerequisite: ME 426, ME 447, or permission of instructor. This course is an introduction to the fundamentals of flight, with a more advanced focus on engineering aspects of flight. Topics include basic aerodynamics of subsonic, transonic and super-sonic flight, airfoil and wing design, airplane performance at various flight attitudes and conditions, and aircraft stability and control. Aerodynamic concepts discussed in the classroom are confirmed by conducting several laboratory experiments in a subsonic wind tunnel. A flight simulator is also used to demonstrate basic fundamentals of flight. The methods of assessing students include homework, quizzes, examinations, classroom discussions, laboratory experiments, a team-based aerodynamic design project, and a final exam.

3 cr.

ME 635 Design of Alternative Energy Systems

Prerequisite: ME 417 or both ME 303 and graduate standing. This course is an introduction to the theory and design of solar, water, wind, and geothermal power generation systems. Students will become familiar with flat-plate collector performance, practical considerations for flat-plate collectors, estimation of residential heating and cooling loads, and thermal design methods. A project involving the design of an energy independent home is assigned. The methods of assessing students include homework, quizzes, a midterm exam, design project report, and a final exam.

3 cr.

ME 640 Materials Selection for Engineering Design and Manufacturing

Prerequisite: ME309 or equivalent or permission of instructor. The course will develop a systemic approach for the development of a new idea or product and facilitate the continuous improvement processes for products currently on the market. The approach is based on evaluating open-ended design problems with respect to the interrelationship between material, shape, function, and processes used to produce a variety of products. In the course, the general characteristics of a wide variety of materials including metals, ceramics, polymers, and composites, will be explored using the materials selection process. Case studies and team projects will focus on materials selection decisions with multiple constraints and based on the factors involved in materials processing and information from several databases. The methods of assessing students include homework, quizzes, and design project reports.

3 cr.

ME 651 Applied Computational Fluid Dynamics

Prerequisite: ME 304, ME 316, and graduate standing. This course provides an introduction to the use of commercial Computational Fluid Dynamics (CFD) codes to analyze flow and heat transfer in problems of practical engineering interest. The course includes an introduction to the conservation equations of fluid dynamics and simple finite difference and finite volume models of one and two dimensional flows. These simple equations are used to demonstrate important features of more complex flows and to give the student an appreciation for the parameters that limit the accuracy of CFD solutions. The bulk of the course aims at using FLUENT which is a commercial CFD code, to solve engineering problems. Students learn the steps involved in performing a CFD simulations, i.e., generating a model, creating a grid, applying appropriate boundary conditions, specifying solution parameters, getting a solution, and post-processing the results for visualization. A brief introduction to turbulence modeling is also included. Students will then practice using FLUENT through solving practical flow problems such as pipe flow, jet flow, and flow over wings. The method of assessing students includes homework, quizzes, a midterm exam, design project report, and a final exam.

3 cr.

ME 654 Computer Control of Manufacturing

Prerequisite: Graduate standing. This is an introduction to NC systems. Topics include point-to-point positioning control and continuous path contouring control, interpolation methods, actuating devices and sensors, digital computer interfaces (A to D, D to A, D to D), position and velocity feedback control loops, and programmable logic controllers. The methods of assessing students include homework, quizzes, a midterm exam, design project report, and a final exam.

3 cr.

ME 660 Practical Aspects of Vibrations, Noise, and Acoustics Engineering

Prerequisite: Baccalaureate degree in mechanical engineering or permission of instructor. In today's competitive environment every product designed by an engineer is subject to dynamic loads in sometimes harsh conditions. The product is likely to be more successful when vibration and noise performance of the design is optimized. This course provides a hands-on introduction to vibrations and noise engineering. The fundamental concepts of vibrations, noise, and acoustics are introduced. The characteristics of typical sensors and actuators used in dynamic testing, such as accelerometers, force transducers, strain gauges, microphones, mechanical shakers, and impact hammers, are reviewed. Using these sensors in combination with modern data-acquisition systems (LabView), students will learn to build experimental testing setups to measure the vibration and noise performance of typical engineering devices. Examples of practical applications are measurement of jet noise, measurement of vibration levels of devices, e.g. a ski, experimental modal analysis of structures, e.g., a golf club, and performing a noise control study of a machine. Several case studies encompassing contemporary design problems from industry are used in the classroom to enhance the learning process. The method of assessing students includes classroom participation, homework and laboratory assignments, examinations, and a final exam.

3 cr.

ME 685 Mechanical Engineering Project

Prerequisite: EMGT 605 or EMGT 648 and 12 credit hours minimum in the program. Students must select a project faculty advisor and obtain topic approval prior to registration for this course. This is an independent engineering project under the supervision

of a project faculty advisor. The design process is emphasized. Progress reports and a final written report are required. An oral presentation and defense of the project is made before a faculty committee.

3 cr.

ME 690 Special Topics in Mechanical Engineering

This is a study of an advanced topic in engineering of special interest to mechanical engineering majors.

3 cr.

ME 698-699 Thesis Research

This is a research course open to mechanical engineering graduate students who have completed requirements for admission to candidacy for the master's degree. Prior to registration, written permission to enroll must be obtained from the student's advisor.

6 cr.

UNDERGRADUATE STUDENT SERVICES AND INFORMATION

Learning Beyond the Classroom

Learning Beyond the Classroom (LBC) is one of the unique features of a Western New England University education. The concept of Learning Beyond the Classroom recognizes that learning can occur anytime, anywhere and not just within the classroom setting. Through involvement as well as reflection, students are encouraged to participate in the learning process. Other schools have experiences that students participate in, but few make deliberate attempts to make sure that these experiences are educationally purposeful.

At Western New England University, we encourage students to reflect on their experiences beyond the classroom in order to integrate their cocurricular and scholarly lives. We want students to understand that their complete experience here is an educational one and that their growth will be much more than one-dimensional. It is our belief and practice that experiential learning deepens students' understanding of their chosen discipline, the field in which they will work, and the society in which they live. We seek to instill in our students a lifelong love of learning and are committed to providing every student with Learning Beyond the Classroom experiences.

The Volunteer Connection Center provides students with different opportunities to engage in community service projects and programs. Through such initiatives as Make A Difference Weekend, Alternative Spring Break, the Students Serving Students (S3) Mentoring Program at Duggan Middle School, and the service organization Community Action Rewards Everyone (C.A.R.E.), students are able to connect with their community, heighten their awareness of various social issues, discover the importance of civic responsibility, and gain skills to enhance their college experience and future careers.

See p. 38 for LBC university-wide requirements.

Residence/Campus Life

Living Facilities. Students may live in a variety of accommodations, ranging from traditional residence halls to room suites with semiprivate baths to apartments or townhouse units with full kitchens and baths. Residence facilities serve as an integral part of the educational program. Students proceed through various types of residential facilities as they progress through their undergraduate programs. First year students are normally assigned to traditional residence halls. Sophomores normally reside in either traditional or suite-style living units and, as space permits, the University's apartment complex. Juniors and seniors may reside in apartments at Gateway Village and Southwood Hall or the townhouses at Evergreen Village.

All residence facilities are furnished with twin, bunk, or loft style beds, storage space (such as closets, free standing wardrobe units, or bureaus), desks, and chairs. Apartment and townhouse units are also furnished with kitchen appliances, a dining table, and living area furnishings. Information regarding services, laundry facilities, etc. is provided online, either as a link on the university's home page, or at www.wne.edu/residencelife/. Assignment is largely determined by the student's housing preferences, class level, and demonstrated academic performance. Requests for university housing are honored depending on availability of facilities and fulfillment of application, payment, and assignment deadlines.

Each area within the residency complexes is staffed by an area coordinator, residence director, or residence manager, and several resident advisors. The area coordinator and residence director are full-time professional staff in residence, who oversee components of university housing throughout the campus. Residence managers are typically graduate students who reside on campus and are responsible for the management of their particular residence hall or area. Resident advisors are full-time undergraduate students working directly with a specific living group. Residence Life is supervised by the assistant dean of students, two associate directors, with support and assistance from a staff assistant and student office assistants.

Dining Services. Food services are provided in the St. Germain Campus Center. A full service board plan offers students a variety

of dining options. Resident students normally take their meals in the main dining room. The Campus Center food court provides a varied menu for commuting students including a la carte dining or late night snacks. Food service is available seven days a week while classes are in session. Students residing in traditional or suite-style units are required to participate in a comprehensive meal plan. Students residing in Gateway Village apartments, Evergreen Village, Southwood Hall, and commuting students may choose to participate in a variety of alternative meal plans, and may register online for the meal plan of their choice. Whereas first year students are required to participate in the full meal plan (20 meals per week), sophomores, juniors, and/or seniors assigned to traditional or suite-style housing may switch to a reduced meal plan option (any 14 meals per week). This may be done online as well.

Students may also purchase 'declining balance points' (DB) which function like a debit card and may be used at all dining locations and the campus center convenience store. All students may purchase DB points and may do so at Student Administrative Services.

Food Service professionals are available to assist with dietary concerns such as food allergies. Detailed documentation from a physician outlining specific food restrictions and/or needs, should be provided to the Residence Life Office. An opportunity will then be coordinated for the student to discuss specific dietary concerns with appropriate personnel in the food service operation.

Campus Center. The St. Germain Campus Center serves as a focal point for social, cultural, and leisure activities at the University. In addition to various recreational and dining facilities, it contains offices for student clubs and organizations, the University Bookstore, and a convenience store. It also contains an art gallery featuring monthly exhibits, a television lounge, and a variety of conference and meeting rooms. A game room provides other leisure time activities.

Most of the Student Affairs administrative offices are located on the second floor, allowing students easy and convenient access. These include the offices of the vice president of student affairs and dean of students, Student Activities and Leadership Development, Residence Life, Learning Beyond the Classroom, the **Career**Center, Counseling, Drug and Alcohol Education,

Campus Ministry, and Diversity Programs and Services. The Office of Freshman and Transfer Students is located on the first floor. The University Bookstore, also located in the Campus Center, provides a complete textbook service. The store stocks a wide variety of paperback books, magazines, educational supplies, and sundry items. Assorted gifts, t-shirts, hats, athletic wear, and other items with the University name or emblem are also available.

Rivers Memorial Hall. The center of the building contains a carpeted area used for large programs and banquets. The perimeter includes space for the music program; the drama program; an arts and crafts area; and the student media including the newspaper, literature magazine, and the yearbook. The cultural center, gay, lesbian, bisexual and transgender resource room and the campus radio station, as well as additional conference and meeting rooms are also available here. There are also faculty offices here.

Parents Association

Originally founded in 1978 by a group of interested parents of undergraduate students, the Parents Association provides an organized vehicle for allowing parents to take a more active part in the affairs of the University. Principally, the Parents Association seeks to promote projects of direct impact on the quality of student life, assisting in providing students with educational and recreational resources and increasing dialogue between parents and the University. A *Parent Handbook* is published by the Parents Association and is distributed to parents of new students.

Student Assistance

Student Administrative Services. The Office of Student Administrative Services (SAS) combines the functions of billing and collections, financial aid, and records and registration. Student Administrative Services is designed to conveniently serve all clients of the University in one location by a team of student services administrators and specialists. Located on the ground floor of the D'Amour Library, the entrance to Student Administrative Services is on the south side of the building. The telephone number is 413-796-2080, and the fax number is 413-796-2081.

Student Disability Services. The Student Disability Services (SDS) office is designed to provide support for any student with a documented disability who requests academic accommodation. To register with the office students requesting these services must identify themselves and offer documentation substantiating a disability. Disabilities protected under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act include, but are not limited to, students with learning disabilities, perceptual disabilities, deaf or hearing impairments, blind or visual impairments, speech disorders, orthopedic impairments, and other health impairments. This disclosure and registration at the office is voluntary. However, registration in the office in a timely fashion is necessary to secure specific academic accommodations. All information, reports, and discussions are held in strict confidence. The director and assistant dean of the Student Disability Services office work with the students and faculty to ensure that necessary services and accommodations are provided in a timely and efficient manner.

Specific requests for accommodations are reviewed and recommendations are made on a case-by-case basis. If students wish, they may arrange for individual appointments weekly or twice each month to review their courses, assignments, and accommodations, and, if needed, to review study skills, time management, and general organizational problems or concerns. The Student Disability Services Office is available to address related issues on disabilities as well as act as a referral source to other personnel on campus. Students are encouraged to visit the office early in the semester to access needed services and acquaint professors of their academic needs in a timely manner to receive full benefits of the services. The provost/vice president for Academic Affairs serves as the Section 504 officer on campus and is responsible for ensuring that Section 504 regulations are fulfilled in a reasonable and timely manner.

Permanent and Temporary Mobility Issues. It is critical that, in the case of either a permanent or temporary mobility impairment, the Office of Student Disability Services (SDS) is notified immediately, so that classes can be moved to more accessible locations, and elevator keys can be provided as needed.

Students with temporary conditions (e.g. broken leg, sprained ankle, emergency surgery) may obtain permission to park in

more convenient spaces if they request this from Student Disability Services and provide a letter of verification from a doctor.

For more information visit our website at www.wne.edu/sds

Counseling Services. Caring, licensed professionals provide confidential help to students with personal, social, and educational concerns. Common areas of concerns include adjustment to college, anxiety, depression, relationships and sexual orientation, eating disorders, substance abuse, sexual/physical abuse, and test anxiety. Services include individual, couple, and family counseling, as well as crisis intervention. We can provide a list of off campus therapists when requested. Psychiatric consultations are available in our office upon referral.

Check out our website where you can take a self-help screening for depression, anxiety, substance abuse, eating disorders, PTSD, or bi-polar disorder. You will also find more information about our staff, commonly asked questions, the Sexual Misconduct Advocate Response Team (SMART), and our Alcohol and Drug Education Services.

To make an appointment you may come to the Counseling Center in person or call 782-1221 during office hours, Monday through Friday, 8:30 a.m. to 4:30 p.m. We are located in the D.J. St. Germain Campus Center, Room 249.

The CareerCenter. The CareerCenter located on the second floor of the St. Germain Campus Center offers a variety of programs and resources on career development related topics. The career staff implements the University's strong commitment to the development of students' career decision making by providing individual career advising and assistance in identifying career options, major and occupational exploration, job search strategies, graduate school decision-making, and internships. Programs, events, and workshops are developed to educate and inform students. The CareerCenter also collaborates with faculty, the Office of Student Affairs, the Office of First Year and Students in Transition, Athletics, the Office of Alumni Relations, and with student organizations to facilitate these activities.

The CareerCenter is dedicated to providing effective career planning and advising and has an exceptional staff of professional counselors to assist students' career decision-

making processes. Students enrolled in the Exploratory Program are encouraged to speak with our exploratory career counselor who will utilize a variety of assessment inventories and exploration tools to assist the student in deciding on a major. Individualized career counseling and advising is available by scheduled appointments or walk-ins. In addition a career counselor is assigned to the College of Arts and Sciences, the College of Business, and the College of Engineering. Four different career planning guidelines are offered by the **CareerCenter** to students at each level of their university education, with the emphasis shifting from academic to professional from their freshman to senior year. All students are advised to begin career planning by knowing themselves, exploring options, and building and expanding their skill base. Academically, students are urged to explore interests through a variety of courses, identify potential majors that relate to their interests and abilities, and focus on time management and study skills.

The University's internship program is coordinated by the career services staff. This program adds value to a student's education by providing the opportunity to bring life to the theories and concepts learned in the classroom and apply them in local businesses, industries, and organizations. The benefits of the internship experience include a confirmation of the student's choice of career path, related job experience, networking opportunities, and greater time and stress management skills. Students also gain experience working as a team member in an environment with needs and problems that have real constraints and consequences.

All students are strongly encouraged to register with the **CareerCenter** Online (www.wne.edu/careercenter) a robust interactive career service management system. Once registered students can create a profile, manage a calendar, upload a résumé, and look for internships and jobs including Federal Work Study, institutional, summer, part-time, and full-time. Access to the **CareerCenter** Online continues after graduation and as alumni of the University. Other resources such as web based career guidance programs, job boards and Internet sites related to a wide variety of options provide students with the knowledge to make informed career decisions. The University's network of alumni can connect students with alumni actively employed in

their fields and eager to share occupational information.

The **CareerCenter** staff brings students in contact with employers through dynamic on-campus recruiting, employer information sessions, and career fairs. In addition, students are assisted with resources for part-time and summer employment. A weekly newsletter is published online and serves as one tool for alerting students to employment opportunities, internships, recruiting schedules, and workshops. The Career Paths newsletter can be found at www.wne.edu/careercenter/

The **CareerCenter's** effective combination of educational career programs and job search services is a valuable complement to a student's academic experience.

Student Employment

The office of Human Resources, located on the second floor of the St. Germain Campus Center, administers the Student Employment program. There are three types of Student Employment opportunities: Federal Work Study, institutional, and also regular part-time employment with local companies.

Student Employment–Federal Work Study

The Federal Work Study Program provides funds for jobs for undergraduate students with financial need, allowing them to earn money to help pay educational expenses. The program encourages community service work and work related to each student's course of study. Federal Work Study Program is need-based and requires a completed financial aid application on file with the University. The Federal Work Study wages are partially funded by the federal government, which is why many University offices prefer to hire students who have an award. While a department may prefer to hire a student with an award, it does not mean that students without Federal Work Study awards cannot work on campus, as there are institutional and other jobs available. Federal Work Study funded jobs can be on campus or off campus. If a student works on campus, they will usually work for the University. If the student works off campus, the employer will be a not-for-profit organization or a public agency, such as a school system, and the work performed must be in the public interest. Western New England University has agreements with not-for-profit employers for Federal Work Study jobs, which must be judged

relevant to the student's course of study to the maximum extent possible. Off campus jobs are with federal programs such as America Reads, the Community Service program, and with various not-for-profit organizations. Some Federal Work Study jobs involving direct and unmonitored contact with children do require criminal offender record information (CORI) checks.

Student Employment–Institutional

For students not receiving a Federal Work Study award, some University offices have institutional jobs available. Wages for institutional jobs are fully paid for by the University. Students typically need to identify the various offices they are interested in and inquire about job availability. It is important for students to promote their special skills such as using computer applications or having a current life saving certificate.

Regular Part-time Employment

Many employers, such as restaurants, private companies, and shopping malls, are located within an easy commute from the University. The two private companies on-campus are ARAMARK, our food service provider, and Follett Corporation, which operates the Blue and Gold Bookstore. The **CareerCenter** publishes an online weekly newsletter at www.wne.edu/careercenter/newsletter which contains many up-to-date job postings.

Getting a Job

Jobs are posted with the **CareerCenter** Online. To view and apply for jobs, students must register online with the **CareerCenter** at www.myinterfase.com/wne/student/ using their six-digit student ID number. Once the student's information has been reviewed by **CareerCenter** staff, students will receive an email notifying them that their **CareerCenter** profile has been activated. Students can then log into the **CareerCenter** Online to update their profile, upload a résumé, view and apply for jobs by following the application instructions, and save their searches as well as view their activity. Students who merely view and apply for jobs online or attend the Student Employment Fair will not be guaranteed that they will receive a job. Students must actively follow up with their potential employers. For further assistance, please contact Wendy Tietz, assistant to the executive director of Human Resources and the **CareerCenter** at wtietz@wne.edu or at 413-782-1679.

Student Employment Job Fair

A Student Employment Fair is held annually during First Week. In attendance are representatives from almost all University offices and departments which will be recruiting student employees. For students who did not receive a Federal Work Study award, area employers who typically offer part-time jobs will also be represented. Students will have an opportunity to speak with potential supervisors about the nature of the job responsibilities.

Health Services. Health Services is located in the Center for the Sciences and Pharmacy. The department is directed by a full-time certified family nurse practitioner and staffed with nurse practitioners, physician assistants, and a part-time physician. Healthcare is available Monday and Thursday 7:00 a.m. to 6:00 p.m., Tuesday, Wednesday, Friday 8:30 a.m. to 4:00 p.m., while undergraduate classes are in session.

During the hours when Health Services is not available, students will find access to a variety of healthcare facilities within close proximity to the University and can be directed to them from our website (www.wne.edu, quick links and choose health services from the drop down menu) or from the Campus Police and Residence Life staff. Health Service staff is also "on call". Call the office at 782-1211 and follow the instructions.

Within 30 days of the first registration of classes, all full-time students are required to have on file with Health Services a medical history and a recent physical examination. A completed immunization record is mandatory including evidence of immunizations against measles, mumps, rubella, tetanus, diphtheria, and the hepatitis B series and meningitis vaccine (optional for law students). Immunizations may be evidenced by documentation or titer values. Registration for classes is contingent upon the above requirements.

Except for treatment rendered by Health Services, students are responsible for financial obligations incurred for medical services. These include laboratory fees, radiology charges, prescription medications, and visits to off campus healthcare providers.

The Commonwealth of Massachusetts requires that undergraduates taking nine credits or greater, or graduate students taking seven credits or greater must either purchase

insurance through the University or complete a waiver form with pertinent information about their private insurer.

Cocurricular Activities. Cocurricular activities are an integral part of student life at Western New England University. Such activities complement the more formal academic program inside the classroom. Significant emphasis is also placed on development of leadership skills. A regular series of leadership training programs is sponsored by the Student Activities and Leadership Development Office. Student Activities and Leadership Development also informs students about the myriad programs and activities which are offered on weekends of the academic year.

Multicultural Interests. In support of the educational value attained through representation of various cultural backgrounds, the University recognizes the particular concerns of under-represented and international students. The University values and supports diversity and inclusion and recognizes that students work and live in a pluralistic society. In order to expose students to an increasingly complex world and to encourage respect for other cultures and people, a variety of programs are offered. Examples of current or past programs include a series on women's history, the celebration of black history, Latino history, world festival, and visiting artists of rich and culturally diverse heritages.

Campus Ministry. The Office of Campus Ministry provides liturgical celebrations and offers guidance and counseling in both spiritual and personal matters. Through its broad-based ecumenical and interfaith programs, Campus Ministry enables each member of the University community to worship in his/her own way. The Catholic, Jewish, and Protestant staff members meet for lunch on Tuesdays with students, faculty, and administrators of their respective denominations.

One particular effort, Cornerstone Christian Fellowship was formed in 2006 by a group of students who desire to see a deeper spiritual life on the Western New England University campus. Cornerstone is a place of sharing, study, prayer, and spiritual growth open to all students and members of the University community. Our desire is that Cornerstone can and will be a safe place where people from all spiritual backgrounds can have the opportunity to learn what it means to be a follower of Jesus.

Cornerstone meets every Tuesday from 9:00 to 10:30 p.m. in the Bears Den.

Campus Ministry joins the Cultural Liaison Office on campus to work closely with the Council of Churches of Greater Springfield, the Interfaith Council of Western Massachusetts, the Rabbinic Fellowship of Greater Springfield, and the Roman Catholic Diocese of Springfield to provide students every opportunity to fulfill their particular religious and spiritual needs.

First and Second Year Program

Mission Statement

The Office of First Year Students and Students in Transition pays particular attention to creating a network of support persons whose intention involves proactive interaction with students in transition. Whether entering college as a first year or transfer student or moving on to the second year of study at the University, the Office of First Year Students and Students in Transition seeks to support students in laying the foundation for success as well as in further defining a sense of purpose and direction in order to maximize the university experience. As an agent of change, the Office of First Year Students and Students in Transition functions in a culture of collaboration with each of the undergraduate schools and academic departments, student affairs staff, faculty, student leadership and alumni. It espouses a student centered approach to program delivery. Students are always to be treated as the reason for any initiative.

Through intentional construction of a personal support network and sponsorship of educationally purposeful initiatives, the Office of First Year Students and Students in Transition prompts students to embrace intellectual change, acquire a sense of place, engage social connections and develop educational purpose. As students move into the second year, support exists to encourage students to define a sense of purpose and direction, challenging students to recognize valued learning in and out of the classroom, discarding any notion of mediocrity in performance, so that full academic and personal potential can be obtained.

The Office of First Year Students and Students in Transition values individuality and diversity. It acknowledges that students enter college at varying developmental stages and with unique needs. We are committed to fostering highly

personal and innovative delivery system in order to prompt students to identify a vision of their future, acquire the confidence to pursue that vision, set realistic goals, maintain motivation, and build academic and personal resiliency. We seek to move students from dependent to interdependent relationships. We emphasize interaction with faculty early in the student experience and characterize peers as highly influential.

Goal of the First and Second Year Program

The formula for success in the first phase of college appears simple: make friends, embrace the academic demands of college work, participate in activities, and seek out people who can help in times of need. The difference between a successful beginning and one which is less successful than anticipated can be related to something as simple as knowing when to get help or finding someone who will listen at times of distress. The program clarifies the simple tasks and attempts to make simple the more difficult tasks of college adjustment. The program challenges students to work to personal potential and to discard any notion of mediocrity.

Program Objectives

The First and Second Year program offers help in the following ways:

- Making students aware of services and resources;
- Identifying and reforming a network of educational and emotional support;
- Encouraging specific goals for academic, physical, and personal accomplishments;
- Prompting involvement and participation in campus life;
- Assisting in development of an educational plan and scheduling of classes;
- Monitoring and encouraging academic progress and engagement;
- Fostering awareness of the value of a college education;
- Increasing student awareness of the responsibility of citizenship;
- Building student confidence; and
- Clarifying career alternatives.

Programs and Services

Programs are always changing to remain current with student needs. In its present form, the First and Second Year program is focused on several elements which are believed to have educational value and purpose and which foster student success. Equally crucial is student participation. One of the most important variables in success is a student's willingness to take advantage of the support system. Without participation, program or advisor interaction is of little value. The following programs are designed to promote a successful adjustment to college life:

1. Summer Orientation and Registration (SOAR)

Students and parents take part in a two-day, overnight program on selected dates through the summer months. The SOAR program is guided by principles of academic anticipation. During SOAR, parents and students reside on campus. Separate but complementary programs are held for students and parents. Student and parent needs are addressed through the first class meeting of First Year Seminar, academic information sessions, adjustment workshops, conversations with faculty, completion of course registration for the fall semester, initiation of a preliminary educational plan, completion of residency assignment information, and introduction to college life. An alternative orientation program is available for transfer students. Typically 94 percent of first year students choose to participate.

2. Bear Tracks Program:

Bear Tracks is an innovative pre-orientation program for first year students. It is intended to assist students in constructing a network of support that promotes self confidence to assist students in building identity in the Western New England University community while promoting confidence in the academic adventure. Students can choose from an Outdoor Adventure Track or an Urban Plunge Track. Each "track" features a three day, two night experience. The Outdoor Adventure Track allows students to participate with their peers in a series of team building and self-exploration activities in the great outdoors while the Urban Plunge Track affords students the opportunity to engage in service projects that will impact residents of the Springfield community.

3. Transitions Program

Moving from an environment that has been relatively predictable and consistent to one that is as of yet undefined requires both realistic expectations and development of a network of support. The Transitions Program has been developed with these goals in mind. The programs encompass both multiple social opportunities for students who make up the learning community to associate and traditional events such as Fall Convocation, an academic assembly focusing on the purpose of higher education. Most importantly, the Transitions Program also introduces students to the network of persons who stand to serve in a mentoring capacity.

4. First Year Seminar

All first semester first year students and transfer students with 26 or less completed college credits (AP or high school to college credit is not counted in the credit limits) are required to successfully complete a graded, credit bearing course focusing on critical thinking, discovery and confirmation of academic interests, oral presentation strategies, promotion of educational values, information literacy, and personal development. Many sections of the seminar also feature content relevant to a particular academic discipline. The seminar is taught by regular teaching faculty who also serve as students' academic advisors for the first two years of enrollment or until such time as a major is confirmed. Students may opt to request reassignment of the faculty advisor should the need arise. First Year Seminar is uniquely structured by each designated College. Credit values vary. Upper-class student assistance further distinguishes the course in the context of modeling and fostering academic integration.

5. Summer Reading Assignment

All freshman students are assigned a selected reading for summer study in an effort to heighten awareness of college academic work and challenge students in critical thinking. Students are expected to begin the academic year fully prepared to discuss the summer reading assignment and to have completed the companion writing assignment. Reading and writing assignments are often linked to regular classes in English and First Year Seminar.

6. College Success Coaching

Not every student enters college with a fully developed background to successfully negotiate the rigor and complexity of collegiate study. It is for this reason that the Academic

Support Center invites students to participate in a 10-week series of academic skills presentations and one on one coaching, both designed to promote achievement consistent with established goals. Topics such as classroom management, study strategies, note-taking strategies, time and task management, and exam strategies comprise the topic focus of a coaching experience that is intended to help students optimize their educational potential.

7. Academic Progress Monitoring

There are two key indicators that serve to foster or inhibit academic success: class attendance and completion of out-of-class assignments. Both indicators are monitored through the first year. Regardless of any class attendance policy, it is well documented that students who regularly attend all class meetings succeed; those who choose to skip class do not succeed. When excessive absence patterns are noted, students are typically advised of the potential impact on progress.

At completion of the sixth week of classes, and at the end of the eighth week grades are calculated based on assignments completed to date. In progress grades are distributed to first year students through the assigned advisor. Second year students access grades on line. Instructors are also encouraged to both express congratulations to those who have met notable success and concern for those who may be struggling. Specific suggestions for improvement and/or reasons for congratulations are then shared with student advisors.

At the end of each semester, student academic performance is formally reviewed to ensure reasonable progress. If students are below minimum standards, a formally structured academic success contract is required. Through the Academic Support Center, academic progress monitoring is put in place through a series of meetings during which continuous assessment of progress is made.

8. Tutoring and Supplemental Instruction (SI)

It is quite normal for students to encounter subject matter which proves challenging. To support instruction, peer tutors are employed to assist students over the rough spots in mastering content and developing study strategies which match the type of course. Tutoring is typically offered on a short-term basis in many 100 and 200 level courses.

Additionally, academic support is offered in certain high-risk courses through a program known as supplemental instruction. SI features organized study sessions coached through upper-class students who have previously taken the course.

9. Life Skills Study Coach

The Life Skills Study Coach program is a unique collaboration between the Athletic Department and the Academic Support Center. It is based on the NCAA/ CHAMPS Life Skills Program and strives to support student development and enhance the quality of the student-athlete experience. Life Skills Study Coaches monitor team sponsored study halls and conduct life skills workshops on goal setting, time management, effective study skills, and other topics that will assist student-athletes in balancing their role on a collegiate varsity athletic team and in achieving academic success.

10. Freshman Focus Program

The freshman focus program serves as an umbrella under which students can access particular opportunities for personal growth. Programs include the Student Activities Expo designed to acquaint students with clubs and organizations, thereby seeking to connect students to the life of the campus. Freshman focus programs also include workshops geared to students who aspire to leadership as "emerging leaders." Students may also elect to take part in Freshman Council, an assembly of freshman students committed to building cohesiveness and respect for every first year student. Yet another dimension of the freshman focus program includes the development of student centered community expectations, a set of guiding principles governing student living and interaction. Finally, the freshman focus program provides the structure for formation of a personal development lecture series revolving around themes of life management and social consciousness.

11. Celebrating Student Success

Student achievement is valued at Western New England University. Students can expect to hear from the dean of First Year Students and Students in Transition or Academic Support Center not only when there is concern, but also when academic and personal goals have been met. Recognition is likewise noted through the freshman honor society, Alpha Lambda Delta. Eligibility is determined by grade point average at the end of the first semester of full time enrollment or cumulatively at the end of

the first year. Second year students are also eligible for election to the sophomore honor society.

12. Alumni Mentoring Initiative

During the first year, students often find that there is lingering lack of clarity over academic and career direction. Formed as an extended part of the First Year program, volunteer alumni from the College of Engineering have been recruited and coached to offer mentoring partnerships which extend the range of the web of support characteristic of the First Year program. Students are assigned an alumni mentor through the first year engineering seminar. Mentors and protégés are brought together in a collaborative program with the Office of Alumni Affairs and the College of Engineering. Students are encouraged to take advantage of the mentoring relationship through a series of relationship "prompts," activities designed around a career development theme through which alumni can provide perspective and advice.

Support in the First Year Transition

An alumnus of Western New England University described the First Year program as a web of support. The alumnus was describing the many options students have to identify a personal resource and mentor. A critical piece to solving the adjustment puzzle is to identify at least one person in an advising capacity who is accessible and interested in student success. In the First Year program, such identification is made easier by searching among a carefully constructed support network: While the second year requires more overt and intentional outreach, mentoring is no less important.

1. Academic Advisor

Each student is assigned to a member of the faculty or professional staff to assist in the development of educational and career plans. Normally, the first year advisor is linked to the first year seminar instructor. Sophomores are typically linked to advisors based on academic discipline. Academic advisors are the principle resource regarding information on academic requirements and should be consulted prior to completion of course registration, and to review in-progress grades.

2. Peer Advisor/Transfer Student Mentor

Each first year student is assigned to an upper-class student who is trained to serve as a

source of information, point of first contact, and conduit to program and services. Most notably, peer advisors coach each student in the formation of the personal success plan and act as an advocate for student success. Transfer students are brought together through the efforts of yet another cadre of upper-class students who work to integrate and support those unique transitional needs.

3. Faculty

Among the notable changes students encounter in college is the shift to assuming personal responsibility for learning. Faculty teaching in the first year and beyond are committed to student success and particularly respond to students who demonstrate a desire to learn. Students are encouraged to take advantage of faculty interest. Faculty further demonstrate their commitment to the quality of instruction in the first year through the existence of a faculty committee dedicated to the first year academic program and promotion of structured learning environments with high feedback.

4. First Year Seminar Assistant

Assigned to each section of the First Year Seminar, upper-class students work with seminar instructors to mentor students in the development of academic skills and attitudes.

5. Resident Advisor

Students of sophomore, junior, or senior standing are employed by the Residence Life Office to assist in the day-to-day management of the residence areas, and the development of group living-learning environments conducive to academic achievement and personal growth.

6. Supplemental Instruction Leader

Within the context of academic programs, there are historically high-risk courses. In a number of such courses, upper class students serve to model and foster effective strategies for becoming a student of the discipline.

For further information about the First Year program (www1.wne.edu/firstyear/) or to solicit advice and counsel regarding educational or personal goals, students and parents are encouraged to contact the dean of First Year Students and Students in Transition.

Student Government

Student Senate

The Student Senate is the official voice of full-time students and is comprised

of representatives from each class, representatives from each of the Colleges of Arts and Sciences, Business, and Engineering, commuter and resident representatives. Elections for most offices are held in the spring of each year. Fall elections are held for freshman representatives. The Student Senate serves as a liaison between students, faculty, and the administration of the University. In addition, the Senate appoints representatives to sit on joint committees of the Faculty Senate in order to encourage cooperation and to foster joint decision making. The Senate has as one of its major responsibilities the budgeting and administering of student activity fees in ways that will most benefit the University community.

Campus Activities Board (CAB)

The Campus Activities Board is a standing committee of the Student Senate responsible for comedy programs, films, concerts, performing arts, recreation, and special traditional events. It is through this body of students that the majority of student programming originates. Particular emphasis is given to providing a full spectrum of programs encompassing both weekday and weekend schedules. Membership is open to any full-time student.

Residence Hall Association (RHA)

The Residence Hall Association provides a forum for self-governance and program development in the residence areas. Organized by elected student representatives from each of the residence areas, RHA provides coordination of hall councils that provide social, recreational, and educational programs. It also provides feedback to the University for improvement in the design and operation of the various residence areas. RHA is also a member of the North East Affiliate of College and University Residence Halls.

Student Organizations

Clubs

A variety of student organizations representing special interests, and often fostered by specific academic departments, offer students the opportunity to expand the range of participation in cocurricular endeavors and to enhance the academic experience. Examples of recognized student groups affiliated with academic departments include the Accounting Association, Marketing Club, Information Technology Association, Math Club, Management Association, Sport Management

Association, Criminal Justice Club, and Engineering Student Council. Particular student interests can also be pursued through such groups as the Cheerleading Club, Outing Club, Dance Team, Step Squad, and Class Councils.

United and Mutually Equal (U & ME) and the International Student Association are organizations serving the needs of an increasingly diverse student body. The goal of these organizations is to promote understanding, appreciation, and enthusiasm for diversity throughout the campus while providing a familiar and supportive community for international students and students of color.

The Arts

The University also offers students a range of activities in which to creatively express themselves. The Arts program has expanded its scope in the classroom to include additional practicum courses in vocal performance and theater history. The performance groups include Campus Chorus, Golden Bear Bands, and Stageless Players Drama Club. Local artists are asked to host Gallery talks as well as to display their medium in the Campus Center Art Gallery on a monthly basis. Students are also able to attend local and regional theater and music attractions. Students may visit the Springfield Quadrangle Art and Science Museums free of charge throughout the year.

The student musical groups perform at a variety of University and community events. The Golden Bear Pep Band performs at home football and basketball games along with the Dance Team and Western New England University Step Squad. The Chorus hosts a concert each semester with the Faculty/Staff Chorus. The Student Art show is featured each spring in the Campus Center Art Gallery. A Fine Arts minor is now offered through the College of Arts and Sciences, www.wne.edu/arts

Publications and Communications

The Cupola is the University yearbook. It is written and edited by students. The editor and staff of *The Cupola* invite interested students to participate in its development and publication. *The Review of Art and Literature* is the University's student literary magazine. The purpose of *The Review of Art and Literature* is to celebrate creative student work in photography, literature, and prose.

The student radio station, WNEK, is a 10-watt non-commercial educational FM radio station licensed by the FCC. Programming consists of news, music, public affairs, and sports. The station, located in Rivers Memorial Hall, is staffed and operated by students. The undergraduate student newspaper, *The Westerner*, is published twice each month. Interested students are encouraged to contribute articles and serve as staff members. All print media has placed either first or second in the American Scholastic Press Association competitions for two consecutive years. The *Student Handbook* contains information, procedures, and regulations governing student conduct, disciplinary procedures, programs, activities, and services. The *Student Handbook* is distributed each fall to all students. All students are held responsible for knowing its content and observing its behavioral guidelines and expectations.

Professional Societies

Alpha Mu Alpha, is the national marketing honorary society for qualified undergraduate, graduate and doctoral marketing students, and marketing faculty. Under the auspices of the AMA, a selected advisory committee of marketing educators designed the recognition program to acknowledge outstanding scholastic achievement on a highly competitive basis. Honor recipients must be senior undergraduate students with a minimum overall GPA of 3.25, members of the WNEU Marketing Association, and members of our Collegiate Chapter of the American Marketing Association.

American Marketing Association (AMA).

Western New England University is home to one of the 400 collegiate chapters of the American Marketing Association. The mission of the Collegiate Chapters Division of the AMA is to be the world's leading professional student organization by furthering the professional development of students through leadership, training, and involvement in the field of marketing.

American Society of Mechanical Engineers (ASME).

The Western New England University student section of The American Society of Mechanical Engineers was established for the purpose of advancement and dissemination of knowledge of the theory and practice of mechanical engineering, the presentation of a proper perspective of engineering work, and

the opportunity to become acquainted with the personnel and activities of the Society, as well as the promotion of professional awareness and fellowship.

Association for Computing Machinery (ACM). Organized as a student chapter, the Association for Computing Machinery seeks to promote a working knowledge of computer science. Design, construction, and language of modern computing machinery are within the interests of the club. Additional goals of the chapter are to promote professionalism and ethical use of computing and information resources. Affiliate membership is offered to any student and full membership is likewise available, provided the student is also a member of the national organization.

Biomedical Engineering Society (BMES). The Biomedical Engineering Society is a national organization of biomedical engineers. The mission of the student branch of the BMES at Western New England University is to provide students the opportunity to learn about the field of biomedical engineering. Through participation in the chapter, students are exposed to the many diverse aspects of the field as well as opportunities for education and employment after graduation. The chapter accomplishes this mission through invited guest speakers, plant and clinic tours, a trip to the Annual Meeting of the BMES, and a trip to the Annual Northeast Bioengineering Conference. Additionally, students are encouraged to submit papers into regional and national competitions sponsored by the BMES. Beyond these experiences, the chapter offers students opportunities for community involvement and social activity.

The Engineering Student Council. The purpose of this council is to coordinate, organize, and implement, many social and educational programs for the College of Engineering. Voting members of the Council are representatives from the ASME, BMES, IEEE, IIE, and SWE professional engineering societies. The Council serves as an advisory board to the dean and faculty of the College of Engineering and is an invaluable resource and sounding board for curriculum and class scheduling.

Institute of Electrical and Electronic Engineers (IEEE). The Institute of Electrical and Electronic Engineers is the world's largest professional engineering society. The Western New England University student

branch provides the electrical engineering student with a means of establishing a sense of professional awareness and identity. It has proven itself to be valuable in helping students make important career decisions. It also provides students with a medium for entering student paper competitions at local, regional, and national levels. A strong tie exists between the local professional chapter and the student branch at the University.

Institute of Industrial Engineers (IIE). The objective of the Western New England University student chapter of the Institute of Industrial Engineers is to promote the profession of industrial engineering through affiliation with the national organization. Activities include discussion of professional opportunities; field trips to employment sites; research; and becoming acquainted with the ideals, purposes, and lifestyle typical of those in the profession. The student chapter brings the classroom experience to life.

Society of Women Engineers (SWE). The student chapter of the Society of Women Engineers was established to serve as a support group and provide career guidance to women engineering students. The student chapter of SWE sponsors panel discussions and lectures given by women engineers focusing on the special needs and problems of women engineers in industry. The students also attend seminars, mini-conferences, and meetings of the National Society of Women Engineers Hartford Section and Boston Section. The SWE chapter has also established a mentorship program with women engineers in local industry.

Student Chapter of the Northeastern Section of the Mathematical Association of America. The student chapter of the Northeastern Section of the Mathematical Association of America provides a forum for students to discuss and plan careers in mathematics and the mathematical sciences; to present student papers at the local, regional, and national levels; and to participate in a national problem-solving contest. Moreover, students are encouraged to attend mathematics conferences, subscribe to journals through the MAA, and to participate in many of the activities during Math Awareness Week each year. The chapter is established to expose students to many areas in mathematics and to all the career options open to mathematicians. Membership is available to any student who is a member of the national organization.

Honor Societies

Alpha Kappa Delta. Alpha Kappa Delta is the national honor society in sociology and a member of the Association of College Honor Societies. The Theta Chapter of Massachusetts was chartered at Western New England University in 1975. Students are nominated for membership through their faculty advisor on the basis of academic excellence and serious commitment to, and interest in, the study of society for the purpose of service to mankind. To be nominated, a student must have a 2.7 cumulative average and a 3.0 average in at least 12 credit hours of sociology and social science course.

Alpha Lambda Delta. Alpha Lambda Delta is a national honor society that recognizes academic excellence during a student's first year in college. The purpose of this honor society is to encourage superior academic achievement among freshmen and to promote leadership early in the students' collegiate experience. Membership is open to all freshmen who earn a cumulative average of at least 3.5 either in their first semester of enrollment or in their first year of enrollment prior to initiation. No incompletes or failures can be on the record. To be eligible, students must be enrolled full-time in a degree program.

Beta Gamma Sigma. Beta Gamma Sigma is a national honor society for business majors at schools accredited by AACSB International, the Association to Advance Collegiate Schools of Business. Students are selected from the top seven percent of juniors, top 10 percent of seniors and top 20 percent of graduate students. Candidates must have completed at least one half of the work required for their degree, and have completed two terms' work at Western New England University.

Omicron Delta Kappa. Omicron Delta Kappa, the National Leadership Honor Society, was founded in 1914 at Washington & Lee University in Lexington, VA. The founders formulated the idea that leadership of exceptional quality and versatility in college should be recognized; that representatives in all phases of college life should cooperate in worthwhile endeavors; and that outstanding students, faculty, and administrators should meet on a basis of mutual interest, understanding, and helpfulness. ODKAE was the first college honor society of a national scope to extend recognition beyond the formal classroom and give recognition and

honor for meritorious leadership and service in extracurricular activities and to encourage development of general campus citizenship. Chapters, which are called Circles, are located on over 300 campuses throughout the nation. The Circle of ODKAE at Western New England University recognizes achievement in the following five areas:

- Scholarship
- Athletics
- Campus/Community Service, Social/Religious Activities, and Campus Government
- Journalism, Speech, and the Mass Media
- Creative and Performing Arts

Nominations are taken each fall and spring from all segments of the campus community.

Phi Alpha Theta. Phi Alpha Theta is the national honor society in history. Its mission is to promote the study of history through the exchange of ideas and the encouragement of research, teaching, and publication. To be considered for membership, a student must have completed at least 12 hours in history (four courses), have a GPA of at least 3.1 in history, have a GPA of at least 3.0 overall, and be in the top 35 percent of the entire class. Membership is not limited to history majors.

Pi Sigma Alpha. Pi Sigma Alpha is the national political science honor society. Students majoring in political science, public administration, and international relations who attain high standards of scholarship and academic distinction in political science and in their overall academic programs are invited to membership. Membership is conferred on the basis of academic merit alone.

Psi Chi. Psi Chi is the national honor society in psychology, an affiliate of the American Psychological Association, and a member of the Association of College Honor Societies. Organized in five regional divisions with more than 300 active chapters, Psi Chi recognizes the academic achievement of students who meet or exceed exacting eligibility standards. The purpose of Psi Chi is to advance the science of psychology, and to encourage, stimulate, and maintain scholarship. To be nominated a student must be a declared major or be enrolled in the minor program in psychology, have completed three semesters of college study, and maintained a 3.0 cumulative grade

point average and a 3.0 grade point average in at least nine credit hours of psychology courses.

Tau Beta Pi. Tau Beta Pi is the national honor society for engineering. Outstanding juniors and seniors inducted into Tau Beta Pi receive national recognition for their academic and professional achievements. Student members of Tau Beta Pi are also invited to join the local engineering honorary, Sigma Beta Tau, which has an active alumni group.

Athletics

The Alumni Healthful Living Center

The Alumni Healthful Living Center is an athletic and recreational facility designed to address the University's concern for students' well being. The Center offers programs in health services and education, recreational activities, and physical education. The University's intercollegiate and intramural programs are conducted there. Facilities for these activities include a basketball court; an eight-lane swimming pool; indoor track; wrestling room; courts for racquetball, handball, squash, and tennis; a studio for aerobics and dance; a Wellness Center; two weight rooms; and a multipurpose field house.

Intercollegiate Competition

Western New England University offers a varsity intercollegiate program for both men and women in a wide variety of sports. Currently, varsity teams are fielded in baseball, basketball, cross country, football, golf, ice hockey, lacrosse, soccer, tennis, and wrestling for men; basketball, cross country, field hockey, lacrosse, soccer, softball, swimming, tennis, and volleyball for women. As active members of NCAA Division III and The ECAC, Western New England University belongs to The Commonwealth Coast Conference for most sports. The Golden Bears strive for athletic excellence.

Other Opportunities

The University also offers opportunities which are not NCAA sponsored, such as its highly successful bowling program and its martial arts competition team. The intramural sports program offers the opportunity for every student to participate in sports. The variety of sports offered is based on student interest. The objective of the intramural program is to promote healthy and vigorous physical

activity for participating students. Equipment and supervision is provided by the University.

ROTC

The University offers both Army and Air Force Reserve Officer Training Corps (ROTC) programs (see p. 27). The Army ROTC program is located on campus with a full-time staff. Air Force ROTC is through the University of Massachusetts at Amherst. Freshman and sophomore ROTC classes are open, with no obligation, to students interested in the development of leadership, study skills, and outdoor skills. Further ROTC training can lead to a commission as an officer in the Army or Air Force with service in the National Guard, Reserves, or on Active Duty. Scholarships, which are merit-based and provide funds for two or three years, are available. For further information, see the Financial Aid section of this catalogue. Any Army ROTC student who desires a commission in the National Guard or Army Reserves can obtain a guaranteed reserve forces duty scholarship.

Standards of Behavior and Student Accountability

In order to assist students in determining a framework in which to measure the acceptability of daily living activities, a code of student conduct has been formulated. This document was endorsed by the Student Affairs Committee of the Faculty Senate, the Student Senate, and the Graduate Council and approved by the Board of Trustees. The Student Conduct Code is to be referenced in the adjudication of the student disciplinary process. The Standards of Behavior and Student Accountability contain specific information on such things as the use of alcoholic beverages; hazing; student organization membership requirements; right of peaceful assembly; possession, use, or distribution of drugs and narcotics; use of campus facilities; respect for a multicultural population; and sexual harassment. Students are urged to familiarize themselves with the responsibilities outlined therein. Copies of the Student Conduct Code for both undergraduate and graduate students are made available through the Office of the Vice President for Student Affairs and dean of students Website http://assets.wne.edu/67/Student_Handbook_2009.pdf

TUITION

Undergraduate

Full-time Students Matriculating After 5/1/03

(12 hours or more per semester)

Basic Annual Fees (2011-2012)

	Arts and Sciences/Business	Engineering
Tuition (12-17 credit hours per term)	\$28,734.00*	\$30,028.00*
Student Activities Fee	300.00**	300.00**
Comprehensive Services Fee	1,810.00	1,810.00
Tuition and Fees	30,844.00	32,138.00
Residential Fee		
Room (two occupants) and Board	11,732.00	11,732.00
Total	\$42,576.00	\$43,870.00
Health Insurance Fee (subject to waiver)	1,810.00**	1,810.00**

*Students who select programs of more than 17 credit hours are charged at a rate of \$958.00 per credit hour for each credit hour over 17.

**Fiscal Year 2010-2011 rate.

Tuition and fees for the first semester are due and payable by August 1. Second semester tuition and fees are due and payable by January 2. In order to avoid unnecessary delay at the time of registration, all students are advised to remit payments by mail prior to the due dates.

Part-time Students – Undergraduate

(Less than 12 hours per semester)

Tuition per credit hour (2011-2012) \$541.00

Graduate Students

Graduate students are charged per credit hour as follows:

Tuition per credit hour (2011-2012)	\$710.00
MAET	\$924.00 per course
MAMT	\$924.00 per course
MEEE	\$924.00 per course
Engineering Tuition	\$949.00 per credit
Ph.D.	\$1,130.00 per credit

Pharmacy Students

Basic Annual Fees (2011-2012)	
Tuition	\$34,878.00
Pharmacy Supplemental Fee	600.00
Comprehensive Service Fee	1,234.00
Student Activities Fee	200.00
Health Insurance Fee (subject to waiver)	1,810.00**

**Fiscal Year 2010-2011 rate.

FEE STRUCTURE

All Students

Application Fee. The University application fee of \$40 must accompany the initial application for admission. This fee is not refundable.

Laboratory Fees. Laboratory fees are required for some courses and are indicated in the course descriptions. The charge covers the use of laboratory equipment, machinery, chemicals, supplies, computers, and business machines. The laboratory fees are payable at the time of registration and are not refundable.

Change of Schedule Fee. A deferred registration fee of \$10 is charged for each change of schedule initiated by the student which involves the addition of a course or the changing of a section. This fee must be paid immediately following approval of the schedule change. The fee is not refundable.

Full-Time Students

Comprehensive Services Fee. The Comprehensive Services Fee covers some of the costs associated with the Alumni Healthful Living Center, Campus Center, health services, counseling, placement services, technology fees, and other support activities at the University. The fee is \$905.00 per semester for full-time undergraduate students.

Health Insurance Fee. The University makes available a general health insurance program provided by an outside carrier. This program is optional. Coverage begins at the start of the school year and continues for 12 months. The fee for this program appears on the statement of charges, and, if a student elects not to participate, the waiver card included with the statement must be returned to the Health Services Office. See the section entitled "Immunization Requirements" in the "Legal Matters" chapter of this volume for insurance requirements necessary for registration.

Student Activities Fee. Each student, by vote of the Student Association and endorsement of the Student Senate, is assessed \$150 (FY10-11 rate) per semester as a Student Activities Fee. Payable at the beginning of each semester, the fee is not refundable. Funds derived are allocated through the Student Senate and

provide the principal source of funding for social and cultural programming, traditional events such as Winter Weekend; student clubs and organizations; student publications such as the newspaper and yearbook; and the radio station. The Student Activities Fee also supports publication of the *Student Handbook* and allows for cooperative funding of such programs as new student orientation, minority and international student groups, and Family and Friends Weekend.

Residential Fees

University housing is available for full-time students, both men and women, in a variety of living styles. Annual room and board fees for the 2011-2012 academic year for each student are as follows:

Double Occupancy/ 20 meal plan	\$11,732.00
Gateway Apartments	*\$6,836.00
Evergreen Village	*\$8,964.00
Southwood	*\$9,178.00

**Room fee only.*

General Housing Policy: To be considered for residence in university housing, the student must be actively enrolled at the University as a full-time, undergraduate degree candidate. Student housing is assigned for the full academic year, unless the student is graduating or withdrawing from attendance at the University, or provides notification, as required, of his/her intent to live off campus. Since campus residency is optional at the University, residency related charges are applied to a student's account only after (s) he has initiated a request for accommodations through the provision of a nonrefundable, nontransferable housing verification payment and fully completed the housing selection process.

Payments and Billing for Campus Residency: The procedure differs for incoming and currently matriculating students, as follows.

For incoming students, the housing verification payment (to the amount of \$300.00) is due immediately upon notification of acceptance from the Admissions Office or as otherwise defined by the University. Following receipt of this payment, the student will be billed the residency fee (room and board) as an anticipated resident student. Receipt of this payment also authorizes student-initiated participation in the online housing selection

process, known as Housing Management Application (HMA). To confirm campus residency, the Student is responsible for completing all components of the online process. Otherwise, the University presumes the student has made other arrangements for accommodations as a commuter.

Currently matriculating students are expected to provide the housing verification payment (to the amount of \$500.00) by the application deadline. This is a non-refundable, non-transferable payment. Receipt of this payment authorizes student-initiated participation in the online housing selection process, known as Housing Management Application (HMA). To confirm campus residency, the student is responsible for completing all components of the online process. Otherwise, the University rightfully presumes the student has made other arrangements for accommodations as a commuter. Any student who submits this payment late will be placed on a waiting list and will choose his/her housing on a space available basis after students who submitted their housing verification payment on time. Proper submission of the housing verification payment and completion of the HMA process will result in the appropriate residency fee (room and board charge, if applicable) billed to the student's account with the University.

Withdrawal from campus residency resulting in commuter status: The University presumes the student is in residence unless (s)he notifies the Residence Life Office, in writing, to the contrary. Written notification must precede other components of the check-out process, such as relinquishment of the key issued at the time of occupancy and/or completion of the room condition record.

- a) 2011 Fall Semester: If the student notifies the office of his/her decision to commute by the deadline stated in the Resident Student Housing Agreement (written correspondence received as of this date) then all room and board charges for the fall semester except the housing verification payment will be credited to the student's account. However, if the Student notifies the office, in writing, of his/her decision to commute after this deadline, all room and board charges for the fall semester will be required to be paid in full by the student.
- b) 2012 Spring Semester: If the student notifies the office of his/her decision to commute

by the deadline stated in the Resident Student Housing Agreement (written correspondence received as of this date) then all room and board charges for the spring semester except the housing verification payment will be credited to the student's account. However, if the student notifies the office, of his/her decision to commute after this deadline, all room and board charges for the spring semester will be required to be paid in full by the student.

Complete withdrawal from the University: All room and board charges except the housing verification payment will be credited to the student's account if (s)he has officially withdrawn from the University prior to the first day of classes for the 2011 fall semester or 2012 spring semester.

All rates are for occupancy on a semester basis and are not refundable or transferable fees. Status as a full-time student must be maintained through mid-semester to qualify for university housing. Failure to meet the established payment deadlines releases the University from any obligation to maintain the housing reservation.

Normally, University residence units must be vacated during regularly scheduled vacation periods. At the close of the academic year for which residency has been authorized, all of the student's personal property is to be removed from the premises and the appropriate checkout procedure is to have been completed. Items left behind shall be considered abandoned and disposed of by the University.

University insurance does not cover any personal property. Students will want to provide coverage through their own or parent insurance program in the event of fire, personal loss, etc.

Residence Hall/Area Damage Deposit. Students are required to leave their living space in good order when departing from the University. A damage deposit of \$100 per student is required of all resident students. Damages are charged against occupants when necessary. This deposit is refundable at the end of the senior year or on withdrawal from the University. The refund will be based upon the condition of the living space at the time of departure.

Board

Students residing in traditional or suite-style units are required to participate in a comprehensive meal plan. Students residing in Gateway Village apartments, Evergreen Village, Southwood Hall, and commuting students may choose to participate in a variety of alternative meal plans. Individual meals are also available on a cash basis. Meal points may be purchased in a variety of denominations and can be used for any food service on campus.

No meals are served during regularly scheduled vacation periods.

On a 20-meal plan, the board fee for the 2011-2012 academic year is \$5,462.00.

Board fees are billed on a semester basis and are due and payable by August 1 for the fall semester, and January 2 for the spring semester. Board fees are not refundable either in whole or in part. Food Service professionals are available to assist with dietary concerns, such as food allergies. Detailed documentation from a physician, outlining specific food restrictions and/or needs, should be provided to the Office of Residence Life. An opportunity will then be coordinated to review specific dietary concerns with personnel in Food Service.

Students who fail to follow this process, regardless of its outcome, are not relieved of financial obligations.

General Financial Information

Checks or money orders should be made payable to Western New England University. If sent by mail, they should be addressed to Student Administrative Services.

The Trustees of the University reserve the right to change tuition rates or fees whenever it is deemed necessary.

Students are not permitted to attend any University exercise or class session until they have complied with all regulations concerning registration and have satisfied all financial obligations or made satisfactory arrangements for payment with Student Administrative Services.

All financial obligations to the University must be met before a student may qualify for re-enrollment, a certificate of honorable dismissal, a transcript, or a diploma. The University retains the right under Title IV

regulations to withhold student's transcripts because of delinquent loans.

Tuition and fees are due and payable by August 1 for first semester, by January 2 for second semester, or at the time of registration unless arrangements have been made for payments as described in the sections on Prepayment Plan, Tuition Paid by Employers, or Employer Extension Plan.

Auditing. There are no special rates for auditing a class. Students granted permission to audit a course must pay the regular tuition and fees which apply to the course.

Acceptance Deposit

Candidates for full-time admission or readmission, upon receiving final notice of acceptance from the director of admissions, are obliged to forward a nonrefundable acceptance deposit of \$100. Payment of this fee must be made by the date indicated in the candidate's notification of acceptance and will not, under any circumstances, be refunded. The deposit will be applied toward the tuition charges in the first semester of attendance in the academic year for which acceptance has been granted.

Expenses for Books and Materials

The cost of necessary books, equipment, and materials varies depending on the courses taken. The cost usually ranges from \$1,000 to \$1,400 per year.

Withdrawal and Refund Policy

The University operates on an academic term basis for which commitments are made to teaching staff and to others whose services are essential to the operation of the University. As such, fees (other than tuition) and room and board charges are non-refundable. Tuition is refunded only as stated in the Refund Schedule below. Additionally, tuition and fees are not transferable to future semesters. Refunds will only be granted to students who voluntarily withdraw and comply with the Procedures for Withdrawing as delineated below. Where a student has been separated, dismissed or suspended from the University for academic, disciplinary, or other reasons, refunds will

be granted in accordance with the Refund Schedule below.

Refund Schedule

Refunds are made to students who voluntarily withdraw based on the following schedule:

- 100% of the tuition charge, less the tuition deposit, will be refunded if the official withdrawal date is prior to the first day of classes;
- 75% of the tuition charge, less the tuition deposit, will be refunded if the official withdrawal date is during the first week of classes;
- 66 2/3% of the tuition charge, less the tuition deposit, will be refunded if the official withdrawal date is during the second week of classes;
- 33 1/3% of the tuition charge, less the tuition deposit, will be refunded if the official withdrawal date is during the third week of classes; and
- 25% of the tuition charge, less the tuition deposit, will be refunded if the official withdrawal date is during the fourth week of classes.

No tuition refunds will be granted after the fourth week of classes.

Procedure for Withdrawing

If it becomes necessary for full-time degree students to withdraw or request a leave of absence from the University, an official form must be completed and filed with the Academic Support Center. This form will be made part of the permanent record maintained in Student Administrative Services (SAS). Prior to completing the withdrawal form, full-time degree students are expected to consult with the dean of First Year Students and Students in Transition in order to complete a formal exit interview. When such conditions as severe illness or absence from the area prevent a student from filing the withdrawal form in person, an application for withdrawal by mail is acceptable. A letter should state the reasons necessitating the withdrawal and should be mailed to the dean of First Year Students and Students in Transition. In the case of part-time or graduate students, withdrawal forms are filed with the Academic Dean's Office

of the College in which the student's major is administered. The date recorded by the reviewing administrator is considered to be the date of withdrawal.

Any approved refunds will be computed on the basis of this date. Absence from class without completing a withdrawal form does not constitute withdrawal and submission of course drop forms may not substitute for a withdrawal. No refunds are made on any fees other than tuition (with the exception of the dorm damage deposit). Students who withdraw with an unpaid balance will be financially liable for any amount remaining unpaid after a refund credit, if any, has been applied to the balance. No student may withdraw from the University in good standing unless all financial obligations have been met.

Any refund resulting from a reduction in the number of hours registered will be made on the basis of the above schedule. Students taking between 12 and 17 hours per term will not have any adjustment in tuition if, after the course reduction, they are still enrolled in 12 to 17 credit hours. The Higher Education Amendments of 1998 require students receiving Federal Title IV financial assistance who withdraw on or before 60 percent of the way through the semester to have their assistance reduced based on calendar days enrolled versus the length of the semester. Programs affected are Pell Grants, Supplemental Education Opportunity Grants, Federal Perkins Loans, Federal Direct Ford Subsidized Loans, Federal Direct Ford Unsubsidized Loans, and Federal Direct Ford Plus Loans but not Federal Work-Study. The calculation of the amount to be returned to these funds may result in the student owing a balance to the University and/or the Federal Government. Institutional scholarships and grants will be adjusted according to the same percentage as the tuition charges. State Aid will be adjusted according to the same percentage as the federal aid.

Late Payment Charge

A finance charge will be computed by a period rate of one percent per month, which is an annual percentage rate of 12 percent applied to the prior balance after deducting current payments and/or credits appearing on the statement. In no case will a student be able to continue enrollment if the previous semester's charges are not paid.

Prepayment Plan

Students who wish to pay their University charges over a 10 or 12 month period may elect this plan. An application form is required to be completed specifying the amount to be budgeted under this plan. There are no interest or finance charges to use this plan. There is a \$50 application and processing fee.

The plan period starts May 1 or July 1 for the academic year beginning in the fall. There is a down payment required if enrollment begins after the start date. A payment schedule is issued and payments are due promptly each month. If the student does not attend, all payments made will be refunded, less nonrefundable charges.

Sibling Discount

This is a \$1,000/year discount offered to each sibling when a family has more than one full-time undergraduate child attending Western New England University in a given year. Each student receives a \$1,000 credit applied to the tuition billing. The discount only applies to sibling relationships and is only available to full-time undergraduate students.

Employer Extension Plan

This tuition is appropriate for students who receive reimbursement that is paid directly to them, not to the University. Under this plan students have their employer verify eligibility to participate in the plan. Students may defer two-thirds of their tuition payment until 30 days after the semester is completed.

Tuition Paid Directly by Employers

Students whose tuition is underwritten by their employers must furnish at the time of registration, or immediately thereafter, an authorization from the employer indicating that the company is directly paying the cost of tuition. Students with direct pay by their employers remain responsible for their bills.

Financial Aid

The University offers a program of financial assistance through scholarships, grants, loans, and part-time employment. Resources are, however, limited. Students and their families

are expected to defray as much of their educational expenses as possible. Financial aid should be considered only as supplemental assistance. Financial aid programs, policies, and procedures for applying are subject to change. Consult Student Administrative Services for current details.

Work opportunities are available both on campus and in the community, and many students earn a portion of their college expenses through part-time employment. Because of the academic demands upon a student's time, no student should work more than 20 hours per week.

Prospective students must be officially accepted for admission into a degree program at the University before their applications for financial assistance will be considered.

Students applying for any federal or state aid must submit the Free Application for Federal Student Aid for processing as soon as possible after January 1. These forms may be obtained from high school guidance counselors or accessed on the Internet at www.fafsa.ed.gov. In addition, all students and parents of dependent students must submit signed copies of their most recent federal income tax returns and W-2s. Families who receive nontaxable income must supply evidence of their nontaxable income (Social Security, Veterans Benefits, Welfare, etc.). Applications for prospective students are processed on a rolling basis beginning on March 1. All application forms for returning students must be received by Western New England University before April 15 in order to receive priority consideration. Therefore, students are encouraged to submit the required forms as early as possible. Late applicants may be considered for financial aid if sufficient funds are available. Most programs require a minimum enrollment of six credits per term.

Aid is generally disbursed on an August to May basis. All students must reapply for financial aid each year, and aid in any year does not guarantee aid in subsequent years.

Students must make satisfactory progress toward their degree requirements to qualify for financial aid and scholarships. Satisfactory progress includes maintaining a prescribed grade-point average and successfully completing a minimum number of credit hours each year. The requirements vary depending on the academic level and enrollment on a full-

time or part-time basis. Copies of the complete "Standards of Satisfactory Progress" policy are available from Student Administrative Services at www.wne.edu/sas

Part-time students must have final approval into a degree program and be enrolled in at least six credits per term to be eligible for financial aid.

Scholarships and Grants

Scholarships/grants are need based unless stated otherwise. You are automatically considered during the financial aid application process. Information on scholarships and grants can be found at www.wne.edu/admissions. You must maintain satisfactory academic progress and register for selective service (if required) to be eligible for any scholarships or grants listed below.

* Scholarships marked with an asterisk have been created through the University's 4-for-4 Scholarship Program. Donors commit to making contributions of \$1,000 or more per year, for each of four years to support a full-time undergraduate student with demonstrated financial need beginning in his or her freshman year. Each scholarship can be specifically designated for a student in one of the Colleges of Arts and Sciences, Business, or Engineering, or for a student enrolled in any undergraduate program at the University.

George I. Alden Endowed Scholarship

Scholarships are awarded annually from a fund established by the trustees of The George I. Alden Trust in Worcester, MA, and by alumni and friends of the University. Funds are awarded to full-time undergraduate students and to graduate or professional students who have a demonstrated financial need.

Alumni Association Golf Tournament Endowed Scholarship

This scholarship is awarded to a junior who is a returning student and who has a cumulative Western New England University GPA of at least 3.0. The student must have demonstrated financial need and have been involved in University student organizations or community service programs. Preference is given to students who graduated from a high school in Massachusetts or Connecticut. The scholarship is renewable for the student's senior year provided they continue to maintain a GPA of at least 3.0 and meet the other scholarship criteria. This endowed scholarship

was established by the Western New England University Alumni Association through funds raised from its annual golf tournament. The tournament is one of the longest standing traditions in the Alumni Association's history, and scholarship recipients are encouraged to attend the event each year that they receive the scholarship.

Alumni Endowed Scholarship

Scholarship awards are made annually by the Alumni Association to a full-time student from each of the Colleges of Arts and Sciences, Business, and Engineering. Two awards are also made to part-time students. The University selects the recipients on the basis of academic merit and demonstrated financial need.

American Society of Mechanical Engineers Scholarship

Scholarships of varying amounts are awarded annually to students majoring in Mechanical Engineering who excel in scholarship and have made a significant contribution to the Mechanical Engineering program at the University. Additionally, their grades should warrant continuing in Mechanical Engineering. The students shall either be juniors or seniors at the start of the next semester. The scholarship is funded by contributions from the Western Massachusetts Section of the American Society of Mechanical Engineers.

Edward L. & Robert L. Anastasi Endowed Scholarship

A scholarship is awarded to an undergraduate student in the College of Business, majoring in Management. The recipient must have a cumulative high school GPA of 3.0 or higher and have demonstrated financial need. The scholarship is awarded starting in the freshman year and can be renewed for the student's subsequent undergraduate years at the University provided he or she maintains a GPA of at least 3.0 and continues to have financial need. Edward L. "Ted" Anastasi received his Bachelor of Science in Business Administration majoring in Management from the University in 1989. Ted is currently a Vice President with Fidelity Investments. Robert L. Anastasi received his Bachelor of Science in Business Administration majoring in Management from the University in 1985. Rob is currently a Vice President with Anastasi Masonry & Construction, Inc. This endowed scholarship was created through the generosity of Ted Anastasi '89 BSBA.

Dr. Emma Wilder Anderson Endowed Scholarship

This scholarship of not less than \$1,000 was established through gifts to an endowment fund by friends, family, and admirers in honor of Dr. Emma Wilder Anderson (1903-1998), distinguished civic leader, internationalist, and devoted friend of the University. In recognition of her accomplishments, of her contributions to society and to the local Springfield community, and of the spirit of hope she embodied, Dr. Anderson was awarded the honorary degree of Doctor of Humane Letters by Western New England University on May 16, 1998.

This merit scholarship is awarded to a returning full-time student, U.S. citizen, or international, with a GPA of at least 3.0 in the first semester of the first year, with a record of community service and volunteerism while at the University or prior to studying at the University, and with a commitment to engage in service on or off campus while a student at the University. The scholarship is renewable upon demonstration of meeting the established criteria for the scholarship.

Atalasoftware Computer Science Scholarship*

Three scholarships of \$1,000 per student are awarded to a sophomore, junior, or senior with demonstrated financial need, who are students in the College of Arts and Sciences and have chosen a major within the Department of Computer Science and Information Technology that also have a major GPA of 3.0 or higher. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student for up to three years at the University, depending upon which year they originally received the scholarship. The scholarship was established through the generosity of Atalasoftware of Easthampton, MA.

Banknorth Endowed Scholarship

This scholarship is available to a full-time undergraduate student who is a resident of Massachusetts, Connecticut, Maine, New Hampshire, Vermont, or New York. The recipient must have demonstrated financial need. This endowed scholarship fund was created through the generosity of the Banknorth Charitable Foundation.

The Bank of Western Massachusetts Endowed Scholarship

Scholarships are awarded to either full- or part-time undergraduate students for their sophomore year, with preference given

to students who are residents of the four western Massachusetts counties of Hampden, Hampshire, Franklin, or Berkshire. Preference is given to employees of The Bank of Western Massachusetts, or children or dependents of The Bank of Western Massachusetts employees. Students can be in any of the Colleges of Arts and Sciences, Business, or Engineering. Each scholarship recipient must have demonstrated financial need; a cumulative Western New England University GPA of 2.7 or better; and have demonstrated leadership, either through involvement in Western New England University organizations or through community service for organizations in western Massachusetts. The scholarship can be renewed for students' junior and senior years provided they continue to meet the scholarship criteria. The endowed fund was established with contributions from The Bank of Western Massachusetts at the generous suggestion of University Trustee Timothy P. Crimmins Jr., president and chief executive officer of The Bank of Western Massachusetts, who received his undergraduate degree from the University in 1970; and University Trustee Frank P. Fitzgerald, chairman of the board of The Bank of Western Massachusetts, who received his undergraduate degree from the University in 1968 and his law degree from the University's School of Law in 1973.

Barnhard Family Endowed Scholarship

This scholarship is awarded to a senior who is due to graduate during the same academic year "for which" the award is made. The student must be enrolled in the College of Arts and Sciences, with preference given to students majoring in History and who are from out of state. The student must live on campus and have a University cumulative GPA of 3.0 or better. This endowed scholarship is generously funded by the Barnhard family and Ronald H. Barnhard '70 BA.

Henry J. Bazan Endowed Scholarship

A scholarship fund has been established by the Management Association and alumni in honor of Professor Henry J. Bazan, a faculty member from 1963 to 2000. A scholarship is awarded to a student in the College of Business. Preference is given to students who are involved in a leadership position in a student organization or are enrolled in ROTC.

Mark Berthiaume and Betsey Thompson Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial

need. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. The scholarship was established through the generosity of Mark L. Berthiaume '78 BSBA and his wife, Betsey Thompson.

Frank Stanley Beveridge Endowed Scholarship

This scholarship is awarded to students from the Massachusetts counties of Hampden or Hampshire who have demonstrated financial need. The endowed scholarship is made possible by a contribution from The Frank Stanley Beveridge Foundation, Inc., a private family foundation directed by the family and descendants of the late Frank Stanley Beveridge, founder of Stanley Home Products, Inc. Through the years, the Foundation has been a generous supporter of Western New England University. Joseph Beveridge Palmer, a director of the Foundation, is a 1967 graduate of the University.

Henry D. Blake Endowed Memorial Scholarship

This scholarship is awarded to a student pursuing a degree in Business who has demonstrated financial need. This fund was established by Henry D. Blake's wife, Rose Breslin Blake, in honor of his outstanding accomplishments in the educational field.

John and Cheryl Bonatakis Scholarship*

A scholarship of a minimum of \$1,250 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the College of Business. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. The scholarship was established through the generosity of John S. Bonatakis '76 BSBA and his wife, Cheryl.

Julie K. Boyce Endowed Memorial Scholarship

Scholarships of varying amounts up to one-half tuition cost are awarded annually to undergraduate students who have demonstrated financial need and academic promise. Preference is given to students majoring in English. This fund was established by Mr. and Mrs. Terry S. Boyce in memory of their daughter, Julie K. Boyce, a member of the Class of 1990. Miss Boyce passed away during the final semester of her senior year. While a student at the University, Julie was

active with many groups and served as Editor-in-Chief of *The Cupola* as well as on the staffs of *The Westerner* and the *Review of Arts and Literature*.

Hayden S. and Catherine L. Bradley Endowed Memorial Scholarship

Two scholarships of not less than \$1,250 each are awarded per year to full- or part-time students who have attained sophomore standing prior to the beginning of the fall semester. Recipients must have demonstrated financial need, have a Western New England University cumulative GPA of 2.7 or better, and be from western Massachusetts, with preference for graduates of East Longmeadow High School. Transfer students are not eligible to receive the scholarship. The scholarship will be renewed for the student's junior and senior years provided they continue to meet the award criteria. The scholarship is given to two students, one majoring in Finance, and one majoring in either Social Work or Biomedical Engineering. Should recipients subsequently change their academic majors, they will still be eligible to receive the scholarship. This endowed scholarship was created through the generosity of Hayden L. Bradley in memory of his parents. Mr. Bradley earned a Bachelor of Science in Mechanical Engineering, graduating with the Class of 1964, and had a distinguished career at General Electric in Pittsfield, MA. He has been an active volunteer for the Western New England University Alumni Association, including serving on the Alumni Association Executive Committee from 1999-2004.

Brennan Family Endowed Scholarship

This scholarship is awarded to a full- or part-time freshman in the College of Engineering whose high school GPA is a 3.0 or higher and has demonstrated financial need. The scholarship can be renewed for the student's subsequent undergraduate years at the University provided he or she maintains a GPA of at least 3.0 from the previous academic year and continues to have financial need. This endowed scholarship was created through the generosity of John J. Brennan, who earned his Bachelor of Science in Electrical Engineering in 1971.

Frederick N. and Maria E. Bromage Endowed Memorial Scholarship

Scholarships of varying amounts are awarded to full-time undergraduate students based on financial need from a fund established by Frederick '34 BBA/'61 MBA and Maria Bromage.

John J. Brown Endowed Memorial Scholarship

This scholarship is awarded to students majoring in Mechanical Engineering beginning in their junior year. Recipients must have a Western New England University cumulative GPA of 3.3 or higher, be members of the American Society of Mechanical Engineers, and have demonstrated financial need. The scholarship is renewable for students' senior year provided they continue to meet the award criteria. This endowed scholarship was created through a bequest by Mae E. Brown to honor the memory of her son, John J. Brown. Mr. Brown was a graduate of the Class of 1964 who earned the degree of Bachelor of Science in Mechanical Engineering. He passed away November 1, 1996. Mrs. Brown passed away April 13, 2004.

Janet Johnson Bullard Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial need. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. This scholarship was established through the generosity of Janet Johnson Bullard '69 BBA.

Coach Richard Burns Memorial Bowling Scholarship

A \$500 scholarship is awarded annually to a returning sophomore or junior with a minimum grade point average of 3.0. There is a preference for a member of the Western New England University bowling team to receive this award. Should a member of the Bowling Team fail to qualify for this scholarship, then preference should go towards a student who is majoring in education. Richard "Dick" Burns was associated with the Western New England University bowling program for 40 years, including 33 years as head coach of the varsity team. He was cofounder of the Tri-State Bowling Conference. Dick was a 1950 graduate of Nebraska Wesleyan University, served on a numerous national collegiate bowling committees and was the sectional coordinator for seven seasons. He also was a member of the National Collegiate Bowling Coaches Association All-America selection committee. Dick was a professor of science and education and faculty member at Western New England University from 1958 until his retirement in 1995. He passed away on Feb. 9, 1999. This scholarship was generously created by Coach Burns' friends and former bowlers in memory

of his dedication to the University, its bowling team, and his players.

Evelyn Burton Endowed Scholarship Fund

Scholarships of varying amounts are awarded based on demonstrated financial need to students who are single parents. This scholarship is provided from a fund established by University Trustee Thomas R. Burton '70 BSBA in memory of his mother, Evelyn.

William F. Campanella Endowed Memorial Scholarship

This scholarship is awarded to a full-time undergraduate student beginning in his or her sophomore year who has demonstrated the following: involvement in the community, either through work in Western New England University organizations and/or through volunteer work in the greater Springfield, MA, community; and/or involvement in one or more of the fine arts, through study of the arts or through the practice of the arts. The student must have financial need and maintain a minimum of a 3.0 GPA. Preference will be given to minority students and to students who graduated from a high school in Springfield, MA. This scholarship was established by family, friends, and colleagues of Bill Campanella, who passed away unexpectedly on April 26, 2003. Bill's passion for and devotion to community service was demonstrated by his involvement with the University campus as well as through his volunteer work with a wide array of community organizations in the greater Springfield area. Bill touched many lives through his excellent abilities as a listener, the guidance he offered, and through the quiet leadership he exhibited in pursuit of a goal. He served the University as admissions counselor, then alumni program director, and finally as associate director of alumni relations.

Dr. Anthony S. Caprio Endowed Minority Merit Scholarship

Merit scholarships of varying amounts will be awarded to a minority student or students who have demonstrated superior academic achievement through performance in high school or college. When financial need is a factor, this scholarship shall be in addition to any amount the student might otherwise receive. This award is renewed each year provided the student attains a Dean's List standing at Western New England University. This scholarship has been established through a gift by President Anthony S. Caprio.

Esther and Salvatore Caprio Endowed Scholarship

This merit scholarship was funded by a gift to the endowment fund of the University by Esther and Salvatore Caprio, friends of the University and parents of the University's fifth president. A scholarship of not less than \$500 will be awarded to a student who at the time of application is a resident of Rhode Island, is beginning full-time study at Western New England University either as a first year or transfer student, and who has demonstrated superior academic achievement in high school or college. It is renewable when the student continues full-time study at the University and maintains a cumulative GPA of 3.0 or above. The scholarship will be in addition to whatever gift award has been made by the University, based on either merit or need. When the Rhode Island student has initially been awarded a strictly merit based scholarship by the University, this scholarship will be added to the award at that time, thereby augmenting the award. When a scholarship has been awarded based on demonstrated need, this merit scholarship will replace a portion of the loan component in the financial aid award.

Carman Family Charitable Foundation Endowed Scholarship

This scholarship is awarded to students with demonstrated financial need. The scholarship was established through the generosity of Leon J. Carman, a graduate of the Western New England University School of Law, Class of 1941, and recipient of the honorary degree Doctor of Humane Letters in 1998 from the University; Mr. Carman's son Barry I. Carman is also a graduate of the School of Law, Class of 1993; and his son Tracy E. Carman is an alumnus of the College of Business, having earned the MBA in 1990. The members of the Carman family have been longtime generous supporters of Western New England University, donating and helping raise funds annually for the University and its School of Law.

Sandra and Robert Carnevale Endowed Scholarship

A scholarship is awarded to a student in the College of Business based on demonstrated financial need and demonstrated academic ability. Preference is given to students who have an entrepreneurial drive, exhibited leadership skills, and have overcome adversity. The scholarship is provided by a fund established by University trustee Robert Carnevale '68 BSBA and his wife, Sandra.

Chester J. Chambers Memorial Scholarship

Scholarships are awarded annually to students from Longmeadow or Springfield who have demonstrated financial need. The scholarship is funded through a trust established in memory of Chester J. Chambers '23 LL.B., who served as a trustee of the University from 1959-1969, and by his wife, Margaret E. Chambers.

Leon D. Chapin Endowed Scholarship

A scholarship is awarded to a full-time undergraduate student majoring in accounting and beginning the senior year. The student must have a GPA that, if continued, would qualify to graduate summa or magna cum laude. This scholarship is from a fund established in honor of Leon D. Chapin, who served as chief fiscal officer at Western New England University from 1945 to 1979 and was executive vice president of the University at the time of his retirement in August 1979.

The Chessey Family Endowed Scholarship

This scholarship is awarded to a full-time undergraduate student majoring in Accounting and/or Finance. This endowed scholarship was created through the generosity of Sandra and Joseph J. Chessey, Jr. Sandy graduated with her bachelor's degree from Western New England University in 1985, and earned her master's degree in Business Administration from the University in 1990. She served the University as controller from 1998 until 2003, and is currently assistant vice president for finance and administration.

Professor Ralph Chimelis and Mrs. Florence B. Chimelis Endowed Scholarship

Scholarships are awarded to students of Western New England University who have demonstrated financial need. This endowed scholarship was established through a generous bequest by Florence B. Chimelis in honor of her husband, Professor Ralph Chimelis. Professor Chimelis was the first Spanish teacher at the University, serving from 1970 until his retirement in 1983.

Arthur and Barbara Clarke Endowed Scholarship

Funds are available to undergraduate students with demonstrated financial need. The late Arthur Clarke was a longtime friend, benefactor, and trustee of the University.

Robert W. & Holly S. Clarke Endowed Scholarship

A scholarship is awarded to a full- or part-time undergraduate student who has demonstrated financial need, maintains a GPA of 3.0 or better, and is enrolled in the College of Arts and Sciences. This scholarship was established through the generosity of University Trustee Robert W. Clarke and his wife, Holly S. Clarke.

Class of 1986 Endowed Scholarship

This scholarship is awarded to full- or part-time freshmen in the College of Engineering who have demonstrated financial need and a cumulative high school GPA of 3.0 or better. Preference is given to students from greater Springfield. The scholarship is renewable provided the students continue to meet the criteria and maintain a cumulative university GPA of 3.0, but the scholarship can be awarded to a student for a maximum of five years. This endowed scholarship was initiated through the generosity of alumnus Albert L. Plante, who earned his B.S. in Electrical Engineering in 1986 and his M.S. in Electrical Engineering in 1990.

Steven E. Cocchi Endowed Memorial Scholarship

Scholarships are awarded annually to undergraduate students, with preference given to junior and senior undergraduate College of Business students from the greater Springfield area. The fund was created by the parents of Steven Cocchi in his memory after he passed away while a student at the University.

Mark A. Coffey Endowed Memorial Scholarship

This scholarship is awarded to an Accounting major with preference given to transfer students. The recipient must have demonstrated financial need and a 3.0 cumulative GPA. For an entering freshman, the GPA requirement is based on the four years of the student's high school education; for an entering transfer student, it is based on the cumulative GPA at their prior institution; for a returning Western New England University student, it is based on the cumulative GPA for their entire college education. The scholarship was established by family, friends, colleagues, and students of Mark A. Coffey, professor of accounting, who taught at Western New England University for 28 years. Professor Coffey served as chair of the Department of Accounting and Finance for two years and collaborated in the development of the Master of Science in Accounting degree program. He was the faculty advisor for the

Student Accounting Association. Through the founding of the Student Accounting Association's annual golf tournament, he helped initiate a means of networking among accounting professionals, accounting firms, and accounting students. Professor Coffey was very active in the University's Faculty Senate, the Stageless Players, and the intramural sports program. He passed away June 6, 2002.

Bruce D. Corl Memorial Scholarship*

A \$1,000 scholarship is awarded to a student pursuing a degree in the College of Business who has demonstrated financial need. This scholarship was created by Alex M. Corl '84 BSBA in honor of his brother Bruce D. Corl, who passed away at the age of 45 after a courageous battle with lung cancer.

Louis T. Cormier Endowed Memorial Scholarship

A scholarship is awarded annually to a sophomore who is a candidate for a degree in Accounting, stands in the upper third of the class, and demonstrates qualities of good citizenship and leadership. This fund was established by Mary T. Cormier in memory of her husband, Thomas Cormier '47 BSBA, formerly of the faculty of the College of Business.

Kevin S. Delbridge Endowed Scholarship

A scholarship is awarded to a full-time student from Massachusetts who resides within a 15 mile radius of Springfield, MA, and is enrolled in the College of Business. The award is based on financial need and demonstrated academic ability. This scholarship is provided from a fund established by University Trustee Kevin S. Delbridge '77 BSBA.

The Delbridge Family Endowed Scholarship

A scholarship is awarded to full-time undergraduates from Massachusetts who reside within a 15 mile radius of Springfield, MA, and who major in a program within the Departments of Physical and Biological Sciences or Psychology. The award is based on financial need and demonstrated academic ability. This scholarship is provided from a fund established by chairman of the Board of Trustees, Kevin S. Delbridge '77 BSBA and his wife, Sandra E. Delbridge.

The Richard and Judith DiRuzza Annual Scholarship

An annual scholarship is awarded to a student entering the junior year who has exhibited

leadership abilities through participation in co-curricular activities at Western New England University and who has financial need. This scholarship was created by friends and colleagues to honor Dr. Richard M. DiRuzza on the occasion of his retirement from the University after 18 years of service at Western New England University, first as dean of students (1991-2001) and then eight years as vice president for student affairs and dean of students (2001-2009).

Diversity Scholarship of Greater Springfield

Merit scholarships of varying amounts are granted to minority students from the greater Springfield area.

Doherty Family Endowed Scholarship

Scholarships are awarded to students from the counties of Hampden, Hampshire, or Franklin, Massachusetts, who have demonstrated financial need. This endowed scholarship was established by Paul S. Doherty, Esq. and Dianne F. Doherty. Mr. Doherty has been a longstanding friend of Western New England University and served as a member of the Board of Trustees from 1973 to 1986. Mrs. Doherty received her Master of Business Administration from the University in 1981.

Henry T. and Margaret S. Downey Endowed Memorial Scholarship

Scholarships of varying amounts are granted to undergraduate accounting students and to law students. The scholarship was established by family, friends, colleagues, and the Western New England University Board of Trustees in memory of Henry T. Downey (1920-1973) and Margaret S. Downey (1916-2006). Mr. Downey earned his Bachelor of Business Administration from Northeastern University-Springfield Division in 1950 and his law degree from the Western New England University School of Law in 1956. His dedication to the University is demonstrated by his service on the Corporate Board from 1960 to 1964 and on the Board of Trustees from 1964 to 1973. He served as vice-chairman of the Board of Trustees from 1971 to 1973. Mr. Downey played a key role in establishing the full-time law program at the University. Mrs. Downey earned her Bachelor of Business Administration from Northeastern University-Springfield Division in 1949 and received an Honorary Baccalaureate degree from Western New England University in 2001.

Engineering Society of Western Massachusetts Scholarship

This scholarship is presented to a sophomore engineering student who will be entering the junior year in the fall semester. It is awarded in recognition of outstanding academic achievement. The scholarship is funded by contributions from the Engineering Society of Western Massachusetts.

Faculty and Staff Endowed Scholarship

This scholarship is awarded to students demonstrating financial need. The funds for the scholarship have been contributed through the years in honor or memory of various faculty and staff of Western New England University.

Financial Aid Endowed Fund

Scholarships of varying amounts are awarded annually to deserving students who have demonstrated financial need.

Frank P. Fitzgerald, P.C., Endowed Scholarship

A scholarship of not less than \$1,000 is awarded to students who are enrolled full-time as undergraduates or in the School of Law and who have demonstrated financial need. The scholarship is renewable when the student continues full-time study at the University and makes satisfactory progress toward degree completion. This scholarship was funded by a gift to the endowment fund by University Trustee Frank P. Fitzgerald '68 BSBA/'73 JD.

Fontaine Bros., Inc. Endowed Scholarship

This scholarship is awarded to a student who has transferred to Western New England University from Springfield Technical Community College. The student can be pursuing a degree in any program of the University. This endowed scholarship was made possible through the generosity of Fontaine Bros., Inc. Fontaine Bros., Inc. is a privately held construction company based in Springfield. Founded in 1933 by Eudore J. Fontaine and his brother George, the company has since grown to become one of the most trusted and respected builders in New England. The firm is currently headed by third generation builders David and Chris Fontaine.

Friendly Ice Cream Corporation Scholarship

Scholarships are awarded to students with demonstrated financial need with preference given to employees of Friendly Ice Cream Corporation, or children or dependents of Friendly Ice Cream Corporation employees.

Students can be in any of the Western New England University Colleges of Arts and Sciences, Business, Engineering, or Law. This scholarship was established through the generosity of Friendly Ice Cream Corporation.

Constance Gleason Furcolo Endowed Scholarship

This scholarship is awarded to students who are pursuing degrees in business and/or law and who have demonstrated financial need. The scholarship was established by the wife of former Massachusetts Governor Foster Furcolo in honor of his outstanding efforts to facilitate the education of worthy students.

George Sumner Gaunt Endowed Memorial Scholarship

One or more scholarships are awarded annually from a fund established in memory of Lt. George S. Gaunt '68 by his classmates and fraternity brothers. Recipients must be in the junior or senior year, enrolled in the College of Business or Engineering, and have at least a 2.5 cumulative GPA. Preference is given to students working with youth development.

Jimmy Geyer Memorial Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman in the College of Business with a demonstrated financial need. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. The scholarship is funded by the James G. Geyer Memorial Trust, established in 2002, through the generosity of his former classmates, teammates, and friends. Jimmy Geyer was a former wide receiver for Western New England University's first NCAA Division III football team in 1981. Jimmy was a standout football player for four years at Western New England University, and subsequently a wonderful husband and father. For those fortunate enough to know Jimmy, he was truly a loving, honest, and honorable friend. Jimmy passed away in 2001, and though his voice is quiet, his spirit echoes still.

Gilbert Matching Grant Program

The Commonwealth of Massachusetts annually provides the University with funds to assist full-time Massachusetts undergraduate students with demonstrated financial need. Awards may range from \$200 to \$2,500 per academic year.

Harley B. Goodrich and Francis A. Johnson Endowed Memorial Scholarship

Awards are made to students who have outstanding records either as undergraduates or in the School of Law. This scholarship was established in memory of Harley B. Goodrich '27 BBA/'42 LL.B., secretary of the Board of Trustees of Western New England University from 1942-1974, by members of Pi Tau Kappa fraternity and the University trustees, and Francis A. Johnson. Mr. Johnson earned the Bachelor of Business Administration in Accounting from the University in 1959 and the Master of Business Administration in 1961.

Jeffrey and Teresa Gurski Scholarship*

A scholarship of a minimum of \$1,000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the College of Arts and Sciences. Preference is given to students majoring in Mathematics. The recipient must have a cumulative high school GPA of 3.0 or higher and have demonstrated financial need. The scholarship is awarded starting in the freshman year and can be renewed for the student's subsequent undergraduate years at the University provided he or she maintains a GPA of at least 3.0 and continues to have financial need. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's time at the University. The scholarship was established through the generosity of Jeffrey M. Gurski and Teresa M. Gurski. Jeffrey received his Bachelor of Arts in Mathematics in 1981 and his wife, Teresa, received her Bachelor of Science in Business Administration in Accounting in 1984.

Hambro Family Endowed Scholarship

This scholarship is awarded to any student of Western New England University who has demonstrated financial need. The scholarship was established through the generosity of University Trustee Bruce F. Hambro '74 BSBA and his wife, Marjorie.

Hampden Bank Endowed Scholarship

Scholarships are awarded to underrepresented undergraduate students from Springfield, MA, who have demonstrated financial need. The endowed fund was established with contributions from Hampden Bank at the generous suggestion of University Trustee Thomas R. Burton '70 BSBA, president of Hampden Bank. The scholarship assists Western New England University in attracting a diverse student body of deserving students.

Alison Mary Harris Endowed Memorial Scholarship

Awards are made to juniors and seniors in the College of Business. This scholarship was established in memory of Alison Mary Harris '89 BSBA by her classmates, friends, and family.

Elinor C. Hartshorn Endowed Scholarship

This scholarship is awarded to a student with demonstrated financial need who has been selected through a Western New England University exchange program either to study abroad or to study at American University in Washington, DC. This endowed fund was established through the generosity of Elinor Hartshorn, Ph.D., friends, and colleagues. Dr. Hartshorn retired from the full-time faculty of Western New England University in 1992 after a distinguished career teaching government and political science. This endowed scholarship fund reflects her belief that an opportunity to study in the unique environment of Washington, or to go abroad for a semester, enriches students' lives and broadens their understanding of the world in which they live. A Western New England University education provides a valuable preparation for this experience.

Carl R. Hellstrom Endowed Scholarship

Scholarships of varying amounts are available to either full-time or part-time students. The scholarship was established by Carl R. Hellstrom in 1961. Applicants must be students of good standing in the University or incoming freshmen. Selection of candidates is made on the basis of academic aptitude and achievement plus qualities of good character, personality, and potential leadership.

Financial need is not the controlling factor in the selection of the recipients, but such need will determine the amount of the scholarship to be granted. Awards are for one year only, but recipients may apply for renewal and be considered on the same basis as new applicants. The number and amount of grants in any year is dependent upon the income available from the fund. Preference is given to students whose parents are associated with Smith & Wesson, Inc.

John Henri Memorial Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial need. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's

four years at the University. The scholarship was established through the generosity of John A. '77 BSBA and Diane Dame.

Beaumont A. and Winifred S. Herman Endowed Scholarship

Scholarships of \$500 or more may be awarded to students beginning their senior year. They must have a GPA that, if continued, would qualify them to graduate magna or summa cum laude. This scholarship was established in honor of Beaumont A. and Winifred S. Herman. Dr. Herman was president of the University from 1955 to 1976.

International Student Scholarship

A limited number of \$9,000 International Student Scholarships are offered each year to undergraduate freshmen and transfer students. The scholarships are renewable if the recipient maintains at least a 2.7 Western New England University GPA, satisfactory academic progress, and full-time status. The Admissions Office selects recipients who have an outstanding academic record and who have at least a 213 TOEFL score (550 on the paper-based TOEFL test).

Jacqueline Stratton Isenburg Endowed Memorial Scholarship

Scholarships are awarded to full-time freshmen who have physical or learning disabilities and demonstrated financial need. Preference is given to students from New Hampshire and Vermont. The scholarship is renewable for the students' undergraduate careers at Western New England University. This endowed scholarship was created by family and friends in loving memory of Jacqueline Stratton Isenburg, who passed away March 24, 2006. Mrs. Isenburg graduated from the University in 1986, having earned the degree of Bachelor of Science in Business Administration.

Thomas Jefferson Endowed Scholarship

This scholarship is awarded to returning full-time students majoring in International Studies. Should there be no eligible International Studies majors in a given academic year, Political Science majors with an interest in international affairs may be considered. A committee drawn from the faculty of the Department of History and Political Science annually determines the recipient(s) of the scholarship. Academic excellence (minimum 3.5 GPA in the major and overall at the time of selection), financial need, and personal qualities reflecting Jeffersonian principles, including integrity and commitment of service

to others, represent the criteria of selection. This award is renewable upon demonstration of meeting the established criteria for the scholarship. This scholarship is in addition to whatever other need-based aid the student has received.

The scholarship was established by Dr. Vladimir Wozniuk, Western New England University professor of Political Science and director of the International Studies program, in tribute to U.S. President Thomas Jefferson, who had served as minister to France and as the first U.S. secretary of state before his presidency. Recipients are encouraged to replenish the endowed fund to help it grow once they acquire the financial means.

Carl E. and Esther S. Johnson Endowed Scholarship

Scholarships of varying amounts are awarded to undergraduate students from a fund established by Mr. and Mrs. Carl E. Johnson. Preference is given to children of employees of the Acme Chain Corporation of Holyoke, MA, and to students from the Holyoke-Springfield area.

Father Christopher Johnson, O.P., Endowed Scholarship

Scholarships of varying amounts are awarded to Hispanic students with demonstrated financial need who maintain a Dean's List average in their chosen field of study. This scholarship was established by University Trustee C.W. Gilluly and his wife, Marny, in honor of Father Christopher Johnson, who served Western New England University as a trustee from 1980 to 1997.

William and Patricia Jolicoeur Endowed Commuter Student Scholarship

Scholarships in the amount of one-half tuition will be awarded to two full-time commuter students. Recipients must demonstrate financial need and be residents of Holyoke, Chicopee, or West Springfield, MA. The fund, established by William Jolicoeur '75 MBA and his wife, Patricia, requires that the recipients have some exposure to free-market ideas during the course of their education at Western New England University.

William and Patricia Jolicoeur Greenfield Community College Transfer Student Endowed Scholarship

This scholarship is awarded to a student or students transferring to Western New England University for full-time undergraduate study

from Greenfield Community College (GCC). The students must have completed the equivalent of at least one full semester (12 credits) at GCC. Preference is given to students who declare a major in Economics or who declare an intent to minor in economics. For students declaring a major in Economics, they could be also be majoring in another field. For students who have declared an intention to minor in economics, they must actually declare the minor no later than the end of their first semester at Western New England University and must have completed some coursework toward the minor no later than the end of their second semester at the University, or the scholarship cannot be renewed for the students' second year at the University. If in a given year no transfer students from GCC enroll with a declared Economics major or a declared intent to minor in economics, secondary consideration will be given to GCC transfer students majoring, in order of preference, in business, or in any other discipline at Western New England University. Preference will be given to a student with a GCC cumulative GPA of at least 3.0. The scholarship is renewable if the student maintains a minimum cumulative GPA of at least 3.0 throughout their college education. Demonstrated financial need is not a mandatory factor in awarding the scholarship. Scholarship recipients must be exposed to free market ideas during the course of their study at Western New England University. As appropriate, the scholarship could be awarded in conjunction with other scholarships such as the Phi Theta Kappa Scholarship or the Transfer Scholarship. This endowed scholarship was established through the generosity of William and Patricia Jolicoeur. Mr. Jolicoeur earned his MBA at Western New England University in 1975 and had demonstrated a passion for the discussion and dissemination of economic concepts for undergraduate students.

Thomas K. Kamp Memorial Scholarship

A scholarship of one-half tuition is awarded annually to a senior in the College of Business. Preference is given to a veteran or the son or daughter of a veteran. The scholarship was established in memory of Thomas Keith Kamp '68 BSBA, who was killed in action in Vietnam on November 17, 1969.

Terry L. Kendall Endowed Memorial Scholarship

This scholarship is awarded to an entering full-time freshman enrolled in the College of Business. The recipient must be a resident of

Springfield, MA, have demonstrated financial need, and have a cumulative high school GPA of at least 3.0. The scholarship is renewable for an additional three years provided that the student maintains a Western New England University GPA of at least 3.0, continues to have demonstrated financial need, and remains enrolled in the College of Business. When there is more than one candidate for the scholarship, financial need will be the deciding factor in its award. This scholarship was established by Jennifer and Bryan Kendall in loving memory of their father, a 1968 graduate of Western New England University and a member of the University's Board of Trustees. Terry Kendall was a kind, generous, thoughtful person whose qualities touched many people. During his time on the Board of Trustees, he was very interested in giving back to the institution that had helped him succeed. As a result of his education at the University, Mr. Kendall went on to earn an MBA and establish a distinguished career in the financial services industry. Prior to his death, he was president of CIGNA Corporation, based in Philadelphia. Mr. Kendall would be very proud of those individuals who go on to achieve greatness as a result of this scholarship. Terry Kendall passed away June 20, 2005, at age 58. He will be forever in the hearts of his family.

Phyllis M. Knecht Endowed Scholarship

This scholarship was originally funded by the sons of longtime University employee Phyllis M. Knecht and their families, and by the President of the University. Mrs. Knecht's many colleagues and friends then contributed generously to the fund so that it could become endowed and serve as a permanent tribute to this remarkable woman.

This scholarship is awarded to a full-time freshman or transfer student from western Massachusetts, and preferably from Ludlow, MA, who has demonstrated financial need and has achieved solid academic achievement in high school or in college. It is renewable when the student continues full-time study at the University and maintains a cumulative GPA of at least 3.0.

Phyllis M. Knecht was in her 33rd year of service upon her retirement from the University on May 3, 2002. From 1970-75, she was the secretary to the director of Food Services; from 1975-76, secretary to the director of Development; 1976-1978, secretary to the academic vice president; 1978-98, secretary to the president

of the University; 1998-2002, assistant to the president.

Mrs. Knecht has been long respected, recognized, and admired by the entire University campus as a devoted employee who has worked assiduously throughout her tenure.

Carol Kowalski Endowed Scholarship

This scholarship is awarded to a full-time undergraduate student in the Colleges of Arts and Sciences, Business, or Engineering starting in his or her sophomore year. The student must have demonstrated financial need and a cumulative GPA of 2.5 or higher. This endowed scholarship was established in honor of Carol Kowalski by her husband, Dr. Stanley E. Kowalski, dean of the College of Business. Carol initiated the art courses at Western New England University and established the University's art gallery. She has taught art classes and curated the art gallery at the University for more than 20 years.

Dr. Stanley Kowalski, Jr. Endowed Scholarship

This scholarship is awarded to full-time undergraduate students in the College of Business who have demonstrated financial need. The students must have cumulative high school GPAs of 2.7 or better and must maintain this academic performance at Western New England University for the scholarship to be renewed. Dr. Kowalski served the University for 33 years, beginning his career at the institution teaching courses in quantitative methods and computer information systems from 1973-1976. He was appointed assistant to the president from 1976-1979 and served as dean of the School of Business and professor of quantitative methods from 1979-2006. Among his many accomplishments while at the University, Dr. Kowalski led the College of Business' successful efforts to achieve accreditation by AACSB International, the premier accrediting agency for business programs throughout the world. This endowed scholarship was established in his honor by family, colleagues, alumni, and friends, and is a reflection not only of the high regard in which he is held, but also of the tremendous dedication he showed to the students of Western New England University.

David P. Kruger Endowed Scholarship

A scholarship is awarded with preference for students in the College of Business who have demonstrated financial need. This endowed

fund was established through the generosity of David Kruger, colleagues, and friends. Mr. Kruger received his bachelor's degree from Western New England University, graduating with the class of 1968. He earned his master's in Business Administration from the University in 1972. Mr. Kruger has served the University since 1973, first as director of financial aid, then as controller, and most recently as vice president of finance and administration.

Alfred and Marian LaRiviere Endowed Scholarship

This scholarship is awarded annually to students based on demonstrated financial need. It was established by University Trustee Alfred A. LaRiviere '51 BBA/'95 LLD (Hon)/'01 Bacc(Hon) and his wife, Marian.

Alfred and Marian LaRiviere Endowed Diversity Scholarship

Scholarships are awarded to students who have demonstrated financial need. To further the University's strategic commitment to foster a campus community that values diversity, preference is given to historically underrepresented or socioeconomically disadvantaged students. This scholarship was established by University Trustee Alfred A. LaRiviere '51 BBA/'95 LLD (Hon)/'01 Bacc (Hon) and his wife, Marian.

Alfred and Marian LaRiviere Alpha Lambda Delta Endowed Merit Scholarship

This merit scholarship is awarded to sophomore Alpha Lambda Delta members who have excelled the most academically during their second year, who will complete the sophomore year at the end of the current academic year, and who will return for the junior year at Western New England University. This scholarship was established by University Trustee Alfred A. LaRiviere '51 BBA/'95 LLD (Hon)/'01 Bacc (Hon) and his wife, Marian.

Alfred and Marian LaRiviere Endowed Music Scholarship

This scholarship of \$500 is awarded to an incoming student who commits to participating in one or more University instrumental and/or vocal ensembles throughout his or her first year. This scholarship will be awarded in addition to any other scholarship support, need-based or merit-based, that the student receives from Western New England University. Students must apply for the scholarship through the process defined by the University. The scholarship recipient must remain in good standing with the University throughout his

or her first year or forfeit the scholarship. The scholarship is renewable for the subsequent years at the University provided he or she continues to participate in one or more music ensembles and remains in good standing. This scholarship was created through the generosity of University Trustee Alfred A. LaRiviere and his wife, Marian. Al LaRiviere, a devoted supporter of the University, graduated with the class of 1951 and received two honorary degrees from the University: an Honorary Doctor of Law in 1995, and an Honorary Bachelor of Science in 2001 that was offered to alumni who had received their original undergraduate degrees when the University existed as the Springfield Division of Northeastern University. Through the music scholarship, the LaRivieres seek to help foster the artistic life of the Western New England University community.

Leadership Grant

Leadership Grants are awarded to matriculating, full-time freshmen and transfer students who have financial need and who have demonstrated their leadership abilities through prior high school, college, and community experiences. The grants are for varying amounts up to \$3,000 per year and will be renewed if the recipient participates in leadership activities at Western New England University and demonstrates financial need. In order to be considered for the grant, students must submit the necessary forms to be considered for need-based financial aid and complete a Leadership Grant application.

The Agnes M. Lindsay Trust Scholarship

Scholarship grants are awarded to students with demonstrated financial need from rural New England communities in Maine, Vermont, New Hampshire, or Massachusetts. This scholarship opportunity is made possible through contributions from The Agnes M. Lindsay Trust.

Richard T. Lovett and Gertrude R. Lovett Endowed Scholarship

Scholarships of varying amounts are awarded to undergraduate students based on demonstrated financial need from a fund established by Richard T. Lovett '34 BBA and Gertrude R. Lovett.

Martin and Roberta Lower/Ludlow Textiles Endowed Scholarship

Scholarships of varying amounts are awarded based on demonstrated financial need and demonstrated academic ability. Preference is given to descendants of former employees

of Ludlow Textiles Company, Inc., and to students who are Ludlow, MA, residents. This scholarship is provided from a fund established by University Trustee Martin A. Lower, a trustee emeritus of the University, and his wife Roberta.

Anthony Lucki Scholarship

The scholarship is awarded to an undergraduate or graduate student enrolled in any of the four colleges of the University, full-time or part-time, who has demonstrated financial need and cumulative GPA of 3.0 or better. It is renewable provided the recipient continues to meet the criteria.

Kathryn L. Luongo Endowed Memorial Scholarship

A merit scholarship is available to a New England resident who has a minimum of a 3.0 GPA. Preference is given to a student who participated in a varsity sport and was able to maintain a minimum GPA of a 3.0 while in high school. The student does not have to participate in athletics while in University. The scholarship is awarded starting for their freshman year and can be renewed for the student's subsequent undergraduate years at the University, provided he or she maintains a GPA of at least 3.0. This scholarship was generously created by Peter C. Steingraber, Trustee and Law Alum of the University, in memory of Kathryn L. Luongo. Mr. Steingraber received his Juris Doctor degree from Western New England University in 1984.

Kenneth A. MacLeod Memorial Scholarship

A scholarship of varying amounts, established by the Sigma Beta Tau Honor Society in memory of Dr. Kenneth A. MacLeod, is awarded annually to the student who received the highest GPA in a regular freshman engineering program. The student must be enrolled as a sophomore in an engineering curriculum at the time of the award.

Harry and Mollie Marcus Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the College of Business. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. The scholarship was established through the generosity of Mollie Marcus in memory of her husband, Harry. The couple were the founders of East Coast Tile Imports, Inc., based in Ludlow, MA.

MASSPOWER Endowed Scholarship

This scholarship is awarded to a freshman from Springfield, MA, majoring in engineering. The award is based on demonstrated financial need and demonstrated academic ability. Preference is given to students who have exhibited leadership skills and reside in Indian Orchard, MA.

Horace and Gertrude McCrea Endowed Scholarship

Scholarships are awarded annually to undergraduate students from a fund established by Horace O. McCrea '23 BCS. Preference is given to students in the College of Business.

James H. McGraw Endowed Scholarship

Scholarships are awarded annually to an Electrical Engineering student who demonstrates financial need.

Raymond and Shirley S. Meyers Endowed Scholarship

This scholarship is available to students who have demonstrated financial need and who are graduates of high schools in the greater Holyoke-Springfield, MA, area. This fund was established by the children of Raymond '51BBA/'64MBA/'01Bacc(Hon) and Shirley Meyers, in honor of their parents.

Jeanne Marie Milkay Endowed Memorial Scholarship

A scholarship is awarded to an undergraduate student majoring in English who has demonstrated financial need. Judith A. and Ronald J. '63 BSME Milkay established this scholarship in memory of their daughter, Jeanne Marie, an English major who graduated from Western New England University in 1984. Jeanne Marie Milkay passed away April 15, 1986.

Northampton Junior College Alumni Association Opportunity Endowed Scholarship

This scholarship is awarded to a student enrolling at Western New England University who has earned an associate's degree from a two-year college. The student can be pursuing a degree in any program of the University and must have demonstrated financial need. This endowed scholarship was made possible through the generosity of Kenneth D. '63 BBA/'66 MBA, Joan Cardwell, and the Northampton Junior College Alumni Association.

**Lawrence F. and Myra T. O'Brien
Endowed Memorial Scholarship**

A scholarship is available to an undergraduate student or students from a fund established by former National Basketball Association Commissioner Lawrence F. O'Brien L '42 LLB in memory of his parents.

**Francis S. and Ruth M. Oleskiewicz
Endowed Scholarship**

One half of available funds will be available to graduates from Marian High School located in Framingham, MA. The recipient will be the applicant with the highest grade point average, at least exceeding 3.0 over the last three years of high school. The remaining one half will be awarded to a graduate of Chicopee High School who also graduated from St. Stanislaus School in Chicopee, MA, and who has maintained at least a grade point average of 3.0, with the award going to the applicant with the highest average. The scholarship recipients can be enrolled in any of the undergraduate divisions of the University or enrolled in a master's program in the College of Engineering or enrolled in the School of Law. Francis Oleskiewicz is a trustee emeritus of the University and a 1961 graduate of the School of Law.

**Earl H. Paine Endowed Memorial
Scholarship**

Awards are made annually from a fund established in memory of Earl H. Paine '27 BCS/'65 DCS(Hon), who served as treasurer of Western New England College from 1937-1965 and on the Board of Trustees from 1951-1970.

Parents Endowed Financial Aid Fund

Scholarships are awarded from a fund established by the Parents Association for students with demonstrated financial need.

**The Pellegrini Family Endowed
Scholarship**

Scholarships are awarded to full- or part-time students with demonstrated financial need. Students can be enrolled in any of the Colleges of the University. At least 25 percent (25%) of the scholarship amount each year is to be awarded to an evening student(s) and at least 25 percent (25%) of the scholarship amount each year is to be awarded to a law student(s). The remaining awards may go to any student with financial need that meets the remaining criteria. This scholarship was established through the generosity of Gerard L. Pellegrini L'57 JD.

The PeoplesBank Endowed Scholarship

A scholarship is available to employees or children of employees of PeoplesBank based on financial need. Should there not be a student that meets the above criteria, this scholarship shall be awarded to a resident of either Hampden or Hampshire counties in Massachusetts. This scholarship is renewable provided the recipient continues to meet the criteria of the scholarship. This scholarship was generously created through the support of PeoplesBank. PeoplesBank was established in 1885, and is one of western Massachusetts oldest and most respected community Banks. PeoplesBank has been deeply routed in the community since its start and has consistently looked for ways to help support the Pioneer Valley and its residents find ways to make this area a great place to live, work, and learn.

**Linda and James Peters and Family
Endowed Scholarship**

A scholarship is awarded to an undergraduate student of the University, with preference for a student who graduated from Monson High School in Monson, MA. The recipient must have a cumulative high school GPA of 3.0 or higher and demonstrated financial need. The scholarship is awarded starting for the freshman year and can be renewed for the student's subsequent undergraduate years at the University, provided he or she maintains a GPA of at least 3.0 and continues to have financial need. This endowed scholarship was created through the generosity of Linda and James Peters. Dr. Linda L. Peters earned her Master of Business Administration from the University in 1996.

Phi Theta Kappa Scholarship

An unlimited number of \$7,000 scholarships are awarded each year to full-time transfer students who are members of Phi Theta Kappa, the two-year college honor society. To be eligible, students must matriculate immediately following completion of their two-year college degree. The minimum college GPA is 3.5 and an A.A., A.S., A.A.S., or Canadian equivalent is required. Students must also be U.S. citizens, and they cannot have previously received a bachelor's degree. Scholarship is renewable for a second year of full-time study if a 2.7 Western New England University GPA and satisfactory academic progress are maintained.

**Thomas and Cynthia Picknally
Scholarship**

A scholarship of a minimum of \$1,500 is awarded to a full-time freshman with

demonstrated financial need who is enrolled in the College of Business. Preference is given to participants in the University's combined BSBA/MBA program. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's time at the University. The scholarship was established through the generosity of Thomas J. Picknally '79 BSBA.

Herman E. and Maud K. Pihl Endowed Scholarship

This scholarship is granted to undergraduate students from a fund established by Mr. and Mrs. Herman E. Pihl. Preference is given to children of employees of the Acme Chain Corporation of Holyoke, MA, and to students from the Holyoke-Springfield, MA, area.

Charles and Ann Pollock Endowed Scholarship

This merit scholarship is awarded with preference for a currently enrolled full-time undergraduate student who has not yet received a Western New England University scholarship. The merit criterion is defined as a Western New England University cumulative GPA of 3.0 or better. This scholarship was established by Charles and Ann Pollock. Charles has served the University since 1977, most recently as vice president for Enrollment Management.

Presidential Scholars Award

Merit scholarships based on outstanding high school academic achievement are awarded to full-time students. Awards are renewable based on achieving and maintaining a 2.7 cumulative GPA, satisfactory academic progress, selective service status, if required, and full-time status.

R. Joseph Racine Endowed Scholarship

Scholarships are awarded annually to students based on financial need from a fund established by retired Professor R. Joseph Racine.

Kenneth M. Rickson Endowed Scholarship

Scholarships are awarded to undergraduate students in the College of Business who have demonstrated financial need. This scholarship was established by Kenneth M. Rickson, who earned his Bachelor of Business in Accounting from Western New England University in 1975. Mr. Rickson has been a strong supporter of the University and has served as a trustee from 1996 to the present.

Rizzi Family Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the College of Business. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. This scholarship was established through the generosity of Matthew A. Rizzi '95 BSBA.

Marc A. Rosenberg Endowed Scholarship

This scholarship is awarded to a full- or part-time undergraduate student in the College of Business who has a cumulative high school GPA of 3.0 or higher and demonstrated financial need. The scholarship is awarded starting for their freshman year and can be renewed for the student's subsequent undergraduate years at the University, provided he or she maintains a GPA of at least 3.0 and continues to have financial need. This endowed scholarship was created through the generosity of Marc A. Rosenberg, who earned his Bachelor of Science in Finance degree in 1980 and his Master of Business Administration degree in 1982.

The Rotary Club of Springfield – Alfred A. LaRiviere Memorial Endowed Pharmacy Scholarship

A scholarship is available based on financial need to a student enrolled in the College of Pharmacy and is a resident of Springfield, MA. This scholarship was generously created by members of the Rotary Club of Springfield, MA, in memory of Alfred A. LaRiviere. Al was a longtime member and past-president of the Springfield Rotary club and served on nearly all of its committees. Al was an alumnus of Western New England University receiving his BBA in Accounting in 1951 and was a trustee at Western New England University for 40 years. Since 1910 the Rotary Motto has been "Service Above Self." Rotary strives to achieve this objective through activities in four primary areas, referred to the Four Avenues of Service. There was no better example of a man that truly lived this motto. Alfred A. LaRiviere's caring heart and countless hours of dedication to Rotary, Western New England University, his family, his community, and to the world will be missed by countless individuals.

Sattler-Goodrich Endowed Scholarship

A scholarship fund in memory of Allan R. Sattler '59 BBA/'61 MBA has been established by members of the Pi Tau Kappa fraternity and the Epsilon Phi Sigma/Tau Epsilon Phi

fraternity. Awards are made to undergraduate students who have outstanding academic records.

College of Arts and Sciences Annual Financial Aid Grant

Annually an award is made to a student enrolled in the College of Arts and Sciences with demonstrated financial need.

College of Arts and Sciences Endowed Scholarship

Funded by the Endowment for Student Financial Aid for the College of Arts and Sciences, this annual scholarship is awarded to undergraduate, upper-class, full-time students in the College of Arts and Sciences with demonstrated financial need and minimum cumulative GPAs of at least 3.0. Contributions from alumni, staff, and friends of the University fund this endowed scholarship.

College of Business Annual Financial Aid Grant

Annually an award is made to a student enrolled in the College of Business with demonstrated financial aid.

College of Business Endowed Scholarship

Funded by the Endowment for Student Financial Aid for the College of Business, this annual scholarship is awarded to undergraduate, upper-class, full-time students in the College of Business with demonstrated financial need and minimum cumulative GPAs of at least 3.0. Contributions from alumni, staff, and friends of the University fund this endowed scholarship.

College of Engineering Annual Financial Aid Grant

Annually an award is made to a student enrolled in the College of Engineering with demonstrated financial aid.

College of Engineering Endowed Scholarship

Funded by the Endowment for Student Financial Aid for the College of Engineering, this annual scholarship is awarded to undergraduate, upper-class, full-time students in the College of Engineering with demonstrated financial need and minimum cumulative GPAs of at least 3.0. Contributions from alumni, staff, and friends of the University fund this endowed scholarship.

Serafino Family Endowed Scholarship

A scholarship is awarded to a full-time undergraduate student in the College of Arts and Sciences who has demonstrated financial

need. Preference is to be given to students who participate in extracurricular activities devoted to the arts. This scholarship is meant to supplement a student's expenses and it is the donor's intent that the award recipient and/or the recipient's family be expected to provide some contribution to the recipient's education expenses. The scholarship is awarded starting for their freshman year and can be renewed for the student's subsequent undergraduate years at the University, provided he or she continues to have financial need. This scholarship was created through the generosity of Michael A. and Patricia J. Serafino. Both, Michael and Patricia graduated from the University in 1977. Michael received a Bachelor of Science in Business Administration and Patricia received a Bachelor of Arts in Sociology.

John F. Shaw Endowed Scholarship

Scholarships of various amounts are available to students from a fund established in 1973 by John F. Shaw. Preference is given to students in the greater Springfield area.

J. Resler Shultz and Dorothy P. Larson Endowed Scholarship

Scholarships of varying amounts are awarded with preference given to residents of eastern Pennsylvania or western Massachusetts. Mr. Shultz was the first director of development at Western New England University and served from 1958 until 1973. Mrs. Dorothy P. Larson was his assistant. They worked diligently to raise funds for the first six buildings on the new campus of Western New England University.

Sibling Discount

This is a \$1,000/year discount offered to each sibling when a family has more than one full-time undergraduate child attending Western New England University in a given year. Each student receives a \$1,000 credit applied to the tuition billing. The discount only applies to sibling relationships and is only available to full-time undergraduate students. Please notify Student Administrative Services each year if qualified.

Sigma Beta Tau Scholarship

A scholarship of varying amounts is awarded annually by the Sigma Beta Tau Honor Society to the student who has received the highest GPA in a regular sophomore engineering program. The student must be enrolled as a junior in an engineering curriculum at the time of the award.

Evan R. Simpson Scholarship

A \$1,000 scholarship is awarded annually to an incoming freshman based on financial need. Evan R. Simpson received his Bachelor of Science in Mechanical Engineering from Western New England University in 1961. Evan was a past president of the Epsilon Phi Sigma fraternity and a past president of the Alumni Association. He was a recipient of the Alumni Association's Special Award for Service and the Silver Letter Award. Evan worked for James River Graphics for 35 years retiring in 1988 as manager of environmental affairs. Evan was married for 61 years to Gladys M. Simpson. Together they had three sons, William, Scott, and David. This scholarship was generously created by Evan's family and friends in memory of his longtime love of and commitment to the University.

William and Iona Sleith Endowed Scholarship

This scholarship of varying amounts is for minority students with demonstrated financial need. These scholarships will be in addition to whatever gift award has been made by the University based on need. William Sleith, alumnus of the Class of 1944, served the University as incorporator and trustee from 1958 until his death in 1996. Mr. Sleith's generous gifts to the University over the years attest to his commitment to the University and to his belief that minority students are a vital constituency of the University community.

Stanley O. Smith Endowed Memorial Scholarship

Scholarships of varying amounts are awarded annually to accounting majors with demonstrated financial need and who are on the President's or Dean's List. The fund is in memory of Stanley O. Smith, president of the first graduating class (1922) and acting president of the University (1954-1955).

James W. Stacy, Class of 2003, Endowed Memorial Scholarship

A scholarship is awarded to an undergraduate student majoring in Psychology who has demonstrated financial need. This endowed scholarship fund was established in loving memory of James W. Stacy by his family, members of the Class of 2003, friends, and teachers. James Stacy, who died January 25, 2003, was a bright and dedicated student who had a wonderful way of making people laugh. He took his studies seriously and in his sophomore year earned membership in Psi Chi, the national psychology honor society. He

also worked hard to help finance his education, helping in the Department of Psychology as a work-study student and working other jobs at night and on weekends. James exemplified the spirit and dedication that most of us aspire to in our lives. He is deeply missed.

Earl S. and Shirley M. Stahl Endowed Memorial Scholarship

This scholarship was established by the family of Earl and Shirley Stahl. Mr. Stahl '53 BBA was the founder of Dielectrics Industries, Inc. in Chicopee, MA. As long as the company remains a family-held enterprise, preference in awarding the scholarship will be given to dependents of Dielectrics Industries employees. Should the company be sold, the scholarship will be open to a broader pool of candidates. One scholarship will be awarded each year. Recipients must be from the Pioneer Valley in the greater Springfield-Hartford area. Priority will be given to undergraduates enrolled in the College of Engineering with secondary consideration given to undergraduates majoring in Management in the College of Business. The award can be based on financial need or merit, with financial need being the deciding factor when there is more than one candidate.

Steerage Rock Endowed Scholarship

Scholarships are awarded to full-time students in the College of Business who demonstrate strong academic achievement and financial need. Recipients must reside in Brimfield, MA, or one of the neighboring towns of Holland, Monson, Wales, or Warren. The annual award is normally a minimum of \$10,000, but is based on the recipients' demonstrated financial need. Available to incoming freshman, the initial award is renewable for an additional three years provided that the student remains academically strong, continues to demonstrate financial need, and is enrolled as an undergraduate in the College of Business. This endowed scholarship was established by a Class of 1973 alumnus of the College of Business.

Jean C. Sterling Endowed Memorial Scholarship

This scholarship is available to undergraduate students with demonstrated financial need. The scholarship fund was established in memory of Jean Cameron Sterling '46 BBA by her husband, Esmond E. Sterling. Mrs. Sterling was vice president of finance and secretary to the board of the Dexter Corporation, based in Windsor Locks, CT.

Kenneth M. Stratton Memorial Endowed Scholarship.

The scholarship is awarded to either undergraduate or graduate students who are working, have financial need, and are not receiving substantial tuition reimbursement from their employer. Students must be pursuing a degree in one of the following business majors, listed in order of preference: 1) Management; 2) Marketing; 3) any other business major. Preference is given first to students from western Massachusetts, second to students from any other area of Massachusetts, third to students from New England. This scholarship was established in memory of Kenneth M. Stratton, '75 BBA, by his family and friends. Ken earned his Bachelor of Science in Management through the Evening Division while working full time and raising a family. He was a warm, caring, and charismatic father and business person who started his business and marketing career with S.C. Johnson Wax Co., later becoming vice president of marketing and sales for Richco Products, Inc., of Springfield, MA.

Student Senate Endowed Scholarship

This scholarship is awarded to a sophomore or junior in his or her spring semester who will be a returning student in the fall and who has an overall cumulative Western New England University GPA of at least 3.0. The student must have demonstrated financial need. The student also needs to have demonstrated and continue to demonstrate leadership qualities and service to a University organization or to the community through a University affiliation. This scholarship has been established with the proceeds of the sale of the University Afghan, developed by the Student Senate.

Stone Family Scholarship*

A \$1,000 scholarship is available to an undergraduate student beginning in their freshman year based upon financial need. This scholarship is renewable for the student's subsequent years at the University provided the student continues to have financial need. This scholarship was generously created by Peter B. Stone. Peter currently is the president and founder of P.B. Stone Associate, Inc., which provides merger and acquisition advisory services for privately held businesses. He resides in Naples, FL.

Kevin R. Sullivan Endowed Memorial Scholarship

A scholarship fund in the memory of Kevin R. Sullivan '81 BSBA was established by

his family and friends. Awards are offered annually to full-time students who have demonstrated financial need and above-average academic performance. Preference is given to handicapped students and students entering their junior year.

Roger J. and Catherine G. Sullivan Endowed Memorial Scholarship

A scholarship is awarded annually to an undergraduate or graduate student enrolled in the College of Business who has financial need and is a veteran or the child of veteran. There is a secondary preference for a returning student who while attending school is caring for dependent children who are living in the same household. This scholarship was generously created by the Estates of Roger J. and Catherine G. Sullivan. The Sullivan's two daughters, Dianne Bowden and Maureen Kennelly created this scholarship in remembrance of their parents, Mr. Sullivan was a 1953 graduate from Western New England University and a Veteran of World War II. After graduating from the University, Mr. Sullivan was a successful businessman and credited his success with the education he received at Western New England University.

Philip W. Suomu Scholarship*

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the College of Business. If the student continues to meet the criteria, the scholarship is renewable and will provide financial aid support for the student's four years at the University. The scholarship was established through the generosity of Philip W. Suomu '83 MBA.

Paul C. and Mary Theilig Endowed Scholarship

Scholarships shall be awarded to undergraduate students with demonstrated financial need who maintain a cumulative grade point average of at least 3.0. Preference will be given to students from New England.

The TJX Foundation Scholarship

A scholarship based on financial need is available to an undergraduate student that is either a child from a single parent household or who is currently raising a family of their own. This scholarship was generously created by the TJX Foundation as part of their mission to provide assistance to disadvantaged women, children, and families.

Susan Tober Endowed Memorial Scholarship

A scholarship is awarded annually to a deserving student from a fund established by the Civitan Club of Springfield, MA, in memory of Susan Tober, an active club member. The student must have demonstrated scholastic achievement and financial need. Preference is given to residents of the greater Springfield area.

Transfer Scholarship

Merit scholarships are awarded annually to transfer students who enroll with at least 12 transfer credits. For consideration, students must have at least a 3.0 GPA from their previous college. Awards are renewable based on achieving and maintaining a 2.7 cumulative GPA, satisfactory academic progress, and full-time status.

Eligibility for the Phi Theta Kappa and Transfer Scholarships is normally based only on grades for college-level courses, usually referred to as 100-level (or higher) courses. A composite college GPA will be calculated for students who attended more than one college. Students who have at least a 3.5 GPA will usually be awarded a \$7,000 merit scholarship while students whose GPA is 3.00-3.49 will usually be awarded a \$5,000 merit scholarship.

Brian P. Trelease Endowed Scholarship

A merit scholarship is awarded to a student in the College of Business from a fund established by University Trustee Brian P. Trelease '67 BBA/'71 MBA. Funding is based on the student attaining Dean's List standing.

Trowbridge-Brown Endowed Scholarship

Scholarships are awarded annually to seniors in the College of Arts and Sciences who have the highest GPAs at the end of the junior year. The award is from a fund established by Clara F. Trowbridge and Ruth Trowbridge Brown.

Trustee Scholarship

This scholarship is used to assist financially needy students to gain an education and makes numerous awards each year to students who would be unable to attend college without financial assistance. These awards are of varying amounts and preference is given to students with GPAs of 3.0 or above.

Richard H. Tucker Endowed Memorial Scholarship

One or more scholarships are awarded annually to deserving undergraduate engineering students. The scholarship is

named in memory of Richard H. Tucker '80 BA, and was established by his family.

Tuition Assistance Grants

The University, to assist financially needy students to gain an education, makes numerous awards each year to students who would be unable to attend college without financial assistance. These awards are of varying amounts.

Janice Gruppioni Underhill Endowed Memorial Scholarship

This endowed scholarship is given to a full-time undergraduate student with demonstrated financial need. Preference is given to students with a physical disability. Should there be no student that meets the above criteria this scholarship has a secondary preference to be awarded to a commuting student. This scholarship was established in memory of Janice by her brother, Thomas A. Gruppioni '77 BSBA.

Nicholas V. Vanech Memorial Scholarship

A scholarship is awarded annually to an undergraduate student who has overcome a significant hardship in life and has financial need. This scholarship was generously created by Dean N. and Denise E. Vanech. Dean is the chairman and chief executive officer of Olympus Capital Investments, LLC located in New Jersey. Dean received a Bachelor of Science in Business Administration from Western New England University in 1982 and Denise received a Bachelor of Science in Business Administration from Western New England University in 1984.

Rainé Veronesi Endowed Memorial Scholarship

This endowed fund was created by Professor Emeritus of Mechanical Engineering, Richard R. Veronesi, Class of 1961, and Mara M. Veronesi, Class of 1985, in loving memory of their wife and mother, M. Raine Veronesi, Class of 1986. The scholarship will be awarded to a student enrolled in the College of Arts and Sciences who has demonstrated financial need and maintains a cumulative GPA of 3.0 or higher. Preference will be given to a full or part-time female student majoring in Liberal Studies, Psychology, or Criminal Justice.

Dr. Hoyt D. Warner Endowed Memorial Scholarship

Scholarships are awarded starting in the sophomore year for students majoring in Computer Science or Information Technology

who display an interest in assisting their fellow computer science students. The recipients must have demonstrated financial need and a Western New England University GPA of at least 2.7. The scholarship is renewable for students' subsequent years at the University provided they continue to have financial need and maintain a GPA of not less than 2.7. The scholarship was created by family, friends, and colleagues of Professor Hoyt Warner, who taught computer science at the University from 1984 to 1998 and made a strong contribution to the development and growth of the Computer Science program.

Westbank Endowed Scholarship

This scholarship is awarded to an entering freshman from Hampden County who is enrolled in the College of Business and who has demonstrated financial need and academic promise. The endowed fund was established with contributions from Westbank, at the generous suggestion of Donald Chase '75 BBA, president of Westbank.

**Western New England University-
MassMutual Achievers Scholarship**

The University will annually award several half or full-tuition scholarships to students who are members of the Springfield, MA, or Hartford, CT, MassMutual Academic Achievers Program. The scholarship is renewable for up to three additional years of full-time, undergraduate study if at least a 2.70 cumulative GPA is maintained. Selection is based on financial need, high school average, awards and recognitions, community and school involvements, and other considerations.

**Western New England University
College of Business Board of Advisors
Scholarship**

A \$1,000 scholarship is awarded annually to a full-time undergraduate student enrolled in the College of Business. In order to qualify for this scholarship, a recipient must have a minimum grade point average of 3.0. The scholarship will be initially awarded to a freshman and may be renewed for subsequent years provided the student continues to meet the criteria of the fund. This scholarship was generously created by the Board of Advisors to Western New England University's College of Business.

**Western New England University
Scholarships**

Scholarships of varying amounts are awarded annually to deserving students who have demonstrated financial need and above-

average academic performance. These awards are made possible by generous gifts from friends and alumni of the University through general scholarship giving.

Wesley and Frances Wilson Scholarship

Scholarships of amounts varying from \$200 to \$600 are available to full-time students. At least 10 awards are made each year. Preference is given to students in the greater Springfield, MA, area. The scholarship is funded through a trust established by E. Wesley and Frances Wilson, friends of Western New England University.

Women in Computing Scholarship*

As part of the University's commitment for providing opportunities for women in the sciences, a scholarship of \$1,000 is to be awarded per year to a full- or part-time female student in the College of Arts and Sciences who has attained sophomore standing prior to the beginning of the fall semester. The recipient must have demonstrated financial need, major in either Computer Science or Information Technology, and have a major GPA of 3.0 or better. The scholarship will be renewed for the students' junior and senior years provided they continue to meet the award criteria. This scholarship was created through the generosity of Dr. Ali Rafiymehr, former chair of the Department of Computer Science and Information Technology.

**The Women's Opportunity Endowed
Scholarship**

A scholarship of not less than \$500 will be awarded to a full- or part-time female student, who demonstrates financial need, and who is committed to the pursuit of academic excellence.

**Theodore R. Zern First Year Student
Endowed Scholarship**

A scholarship is awarded in the spring semester to a full-time freshman with demonstrated financial need and who also attended full-time during the immediately preceding fall semester. The scholarship was created through the generosity of dean of freshman and transfer students Theodore R. Zern and his wife, Roxanne. Dean Zern is the chief architect for the University's First Year Program and was with the University for almost 40 years until his retirement.

Scholarships and Special Awards Available to Part-time Undergraduate Students

Students must be enrolled in a minimum of six credits of coursework to be considered for these scholarships and awards.

Adult Learner Scholarship – For Graduate and Undergraduate Study

Adult Learner Scholarships are awarded to degree-seeking graduate and part-time (less than 12 credits per term/semester) undergraduate students. Students must have a financial need, and must be taking classes on the Springfield campus or online.

Alumni Endowed Scholarship

Scholarship awards are made annually by the Alumni Association to two undergraduate part-time students. The University selects the recipients on the basis of scholarship and demonstrated financial need.

Susan Squire Bousquet Endowed Memorial Scholarship

A scholarship is awarded annually to a student in Continuing Education with demonstrated financial need. Susan was a student at the University when she passed away in 1988. Her family and friends established this scholarship in her memory.

Brennan Family Endowed Scholarship

This scholarship is awarded to a full- or part-time freshman in the College of Engineering whose high school GPA is a 3.0 or higher and has demonstrated financial need. The scholarship can be renewed for the student's subsequent undergraduate years at the University provided he or she maintains a GPA of at least 3.0 from the previous academic year and continues to have financial need. This endowed scholarship was created through the generosity of John J. Brennan, who earned his Bachelor of Science in Electrical Engineering in 1971.

Evelyn Burton Endowed Scholarship

Scholarships of varying amounts are awarded based on financial need to students who are single parents. This scholarship is provided from a fund established by University Trustee Thomas R. Burton '70 BSBA in memory of his mother, Evelyn.

Norman J. and Doris S. Cartmill Endowed Scholarship

This is a merit scholarship for a returning part-time student majoring in business who has completed 30 credits. It was funded by a gift from University Trustee Emeritus Norman J. Cartmill '50 BBA/'61 MBA/'01 Bacc(Hon) and his wife, Doris.

Louis T. Cormier Endowed Memorial Scholarship

A scholarship is awarded annually to a student of the sophomore class who is a candidate for a degree in Accounting, stands in the upper third of the class, and shows definite qualities of good citizenship and leadership. This fund was established by the wife of the late Thomas Cormier '47 BBA, formerly of the faculty of the College of Business.

Denise G. Crawford Endowed Scholarship

This scholarship is awarded to a part-time student in the College of Business. The scholarship was established by Mrs. Crawford's husband, Walter J. Crawford '61 BBA, family, and friends in recognition of Mrs. Crawford's 35 years of outstanding service to her alma mater. At the time of her retirement, Denise Crawford '61 BBA was the staff assistant to the academic vice president.

Carl R. Hellstrom Endowed Scholarship

Scholarships of varying amounts are available to either full-time or part-time students. This scholarship was established by Carl R. Hellstrom in 1961. Applicants must be students of good standing in the University or incoming freshmen. Selection of candidates is made on the basis of academic aptitude and achievement plus qualities of good character, personality, and potential leadership.

Financial need is not the controlling factor in the selection of the recipients, but such need will determine the amount of the scholarship to be granted. Awards are for one year only, but recipients may apply for renewal and be considered on the same basis as new applicants. The number and amount of grants in any year is dependent upon the income available from the fund. Preference is given to students whose parents are associated with Smith & Wesson, Inc.

Beaumont A. and Winifred S. Herman Endowed Scholarship

Scholarships of \$500 or more may be awarded to students beginning their senior year. They must have a GPA that, if continued, would

qualify them to graduate magna or summa cum laude. This scholarship is from a fund established in honor of Beaumont A. and Winifred S. Herman. Dr. Herman was president of the University from 1955 to 1976.

Massachusetts Part-Time Grant

The Part-Time Grant program is a grant assistance program that provides need based financial assistance to part-time (6-11 credits) undergraduate students who reside in Massachusetts.

Joseph A. Mastrangelo Endowed Scholarship

A scholarship is awarded annually to a person taking more than the normal academic schedule (three courses) as a nontraditional student. This scholarship was established by Joseph Mastrangelo '77 BBA.

Marc A. Rosenberg Endowed Scholarship

This scholarship is awarded to a full- or part-time undergraduate student in the College of Business who has a cumulative high school GPA of 3.0 or higher and demonstrated financial need. The scholarship is awarded starting for their freshman year and can be renewed for the student's subsequent undergraduate years at the University, provided he or she maintains a GPA of at least 3.0 and continues to have financial need. This endowed scholarship was created through the generosity of Marc A. Rosenberg, who earned his Bachelor of Science in Finance degree in 1980 and his Master of Business Administration degree in 1982.

M. Rainé Veronesi Endowed Memorial Scholarship

This endowed fund was created by Professor Emeritus of Mechanical Engineering, Richard R. Veronesi, Class of 1961, and Mara M. Veronesi, Class of 1985, in loving memory of their wife and mother, M. Rainé Veronesi, Class of 1986. The scholarship will be awarded to a student enrolled in the College of Arts and Sciences who has demonstrated financial need and maintains a cumulative GPA of 3.0 or higher. Preference will be given to a full or part-time female student majoring in Liberal Studies, Psychology, or Criminal Justice.

Mark Philip Willett Memorial Endowed Scholarship

Annual scholarships are available to part-time students in the College of Engineering who are pursuing an undergraduate degree in Electrical Engineering. Individuals pursuing

a concentration in computer engineering will receive special consideration. These scholarships are provided from a fund established by Constance Marie Willett, Ph.D. (MBA 1991) in memory of her brother, Mark Philip Willett (BSCPE 1988). Recipients must have a Western New England University cumulative GPA of 2.7 or higher, or be incoming freshmen. Preference will be given to individuals who possess good character and demonstrated leadership skills, with special consideration given to those who have overcome adversity as well. This award is for one year only; however, if the recipient continues to meet the established criteria, he/she will be considered for renewal on the same basis as new applicants.

Federal Financial Assistance Programs

The U.S. Department of Education provides financial aid for higher education. The following paragraphs serve as a guide to the six major financial aid programs in the U.S. Department of Education. These programs are available to full-time and part-time undergraduate students.

Federal Pell Grants

The Pell Grant program is available to undergraduate students demonstrating financial need. Eligible students may receive up to \$5,550 each year. Students may apply for these grants by submitting the Free Application for Federal Student Aid. These forms may be obtained from a high school guidance counselor or at www.fafsa.gov

Federal Supplemental Educational Opportunity Grants

Supplemental Educational Opportunity Grants are available to a limited number of undergraduate students with extreme financial need. These grants range from \$200 to \$4,000 a year.

Federal Perkins Loan

The University has established and administers a Perkins Student Loan Fund. Eligible students may borrow amounts not exceeding \$6,000 aggregate for pre-baccalaureate, and \$12,000 aggregate for all undergraduate and graduate years.

Federal Work-Study

Part-time student employment is available to many students with financial need. Preference

is generally given to applicants having the greatest financial need.

Federal Direct Ford Student Loans

Eligibility for a subsidized loan is based on financial need as determined by the analysis of a Free Application for Federal Student Aid. If a student does not qualify for a need based loan, the student may apply using the same application process and loan limits for an unsubsidized loan. The interest that accrues during periods of enrollment for a subsidized loan is paid by the federal government. The interest that accrues during periods of enrollment for an unsubsidized loan is paid by the student. Application can be made by completing the Free Application for Federal Student Aid. Freshman students may borrow up to \$3,500 per year, sophomores may borrow up to \$4,500 per year, juniors and seniors may borrow up to \$5,500 per year. All undergraduate students may borrow up to an additional \$2,000 in an unsubsidized loan. Graduate students may borrow up to \$20,500 per year. The total amount that undergraduates may borrow is \$31,000, while the total for graduate students is \$138,500 (including undergraduate loans). First and second year independent students may borrow up to \$4,000 additionally under the unsubsidized loan program. Third and fourth year students may borrow up to \$5,000 additionally under the unsubsidized loan program.

Federal Direct Parent Loan for Undergraduate Students (PLUS)

Parents of dependent undergraduate students may borrow up to the cost of attendance minus any other financial aid resources under the PLUS Program. The interest rate for the PLUS loan is adjusted annually with a cap of nine percent. To apply go to studentloans.gov

Other Financial Assistance

State Scholarships

Many states have established scholarship and grant programs to assist residents of their state. In Massachusetts, for example, students judged to be eligible can receive a \$1,600 award while attending a private institution within the Commonwealth. Other areas, such as Connecticut, New Hampshire, Pennsylvania, Rhode Island, Vermont, Maine, and Washington, DC, have similar programs. Application can be made by completing the Free Application for Federal Student Aid or by writing to your state Board of Higher

Education. This program is available to full-time undergraduate students.

Outside Assistance

Many scholarship and financial assistance programs are available to deserving students through local and state civic groups, clubs, and organizations. Students are urged to seek out such programs in their local areas. Student Administrative Services also has several external scholarship publications for students to utilize. One may reference on the Internet (www.finaid.org or www.fastweb.com) for links to other sources.

Alternative Financing

Several banks offer loans to students and parents to help pay for college. Loans can range from \$2,000 to cost of attendance. The interest rates are variable. No collateral is required, and borrowers must have a good credit rating and the ability to repay. Student Administrative Services has additional information and can refer families to participating lenders. These programs are available to full-time and part-time students.

Joan B. Mulcahy Student Loan Fund

In 1971 an emergency student loan fund was established through the generosity of faculty, staff, students, and friends of the University in memory of Joan B. Mulcahy. This fund is used to assist students in need of lesser loans for relatively short periods of time and for help as emergencies develop. The fund is self-supporting through repayments, and loans are granted on an interest-free basis. The fund is administered by the dean of students. This program is available to full-time and part-time undergraduate students.

LEGAL MATTERS

Western New England University is required by various state and federal statutes to publish information about certain legislation that may affect some or all of our students. That information is presented below.

Absence Dictated by Religious Beliefs

Under Massachusetts General Laws, Chapter 151C, Section 2B, any student in an educational or vocational training institution, other than a religious or denominational educational or vocational training institution, who is unable, because of his religious beliefs, to attend classes or to participate in any examination, study, or work requirement on a particular day shall be excused from any such examination or study or work requirement, and shall be provided with an opportunity to make up such examination, study, or work requirement which may have been missed because of such absence on any particular day; provided, however, that such makeup examination or work shall not create an unreasonable burden upon such school. No fees of any kind shall be charged by the institution for making available to the said student such opportunity. No adverse or prejudicial effects shall result to any student because of his availing himself of the provisions of this section.

Confidentiality of Student Records

The Family Education Rights and Privacy Act of 1974 (revised 1988, 1993) assures students the right to inspect and review all University records, files, and data directly related to them with the exception of medical and psychiatric records, confidential recommendations submitted before January 1, 1975, records to which a student has waived the right of access, and financial records of the student's parents.

The Privacy Act also prohibits the distribution of grades to parents or guardians without prior written consent of the student, or a statement of dependency from the parent when the student is a dependent under the criteria of the Internal Revenue Code.

The Privacy Act requires the University to respect the privacy of education records, but provides the right to make public at its

discretion, without prior authorization from the individual student, the following personally identifiable information:

- Name of student;
- Local and permanent addresses and telephone numbers; (including cellular telephone numbers);
- Email address;
- Class year;
- College or school of enrollment;
- Major field of study;
- Enrollment status (i.e. full-time or part-time);
- Date and place of birth;
- Dates of attendance at Western New England University;
- Nature and dates of degrees, honors, and awards received;
- Weight and height of student athletes;
- Participation in officially recognized sports and activities; and
- High school and any institution of higher learning previously attended.

A student may limit the release of the above information by filing an information waiver form with Student Administrative Services (SAS) office each year, within the first week of the start of each fall semester.

Firearms Possession

The General Laws of the Commonwealth of Massachusetts prohibit the unauthorized possession of any firearm on the campus of any college or university within the Commonwealth. Students should be aware that the Commonwealth of Massachusetts strictly enforces its firearm laws. In Massachusetts, conviction for the illegal possession of a firearm carries a mandatory one-year jail sentence.

Hazing

Under Massachusetts General Laws, Chapter 269, Sections 17, 18, and 19, any form of hazing is considered to be a criminal offense punishable by a fine and/or imprisonment. Furthermore, persons who witness or have knowledge of hazing incidents and fail to report them are also subject to similar penalties. Each Western New England University student organization, at the beginning of the academic year, and every student, at the time of registration, is provided with a copy of the Massachusetts General Laws concerning hazing. The officers of student clubs and organizations are required to sign a formal statement acknowledging receipt of such regulations and verifying their adherence to refrain from any practice of hazing, harassment, or activities which may serve to cause embarrassment to prospective members, initiates, or pledges. Any student organization found to be involved in such hazing or harassment of members or prospective members will have its recognition immediately withdrawn and be required to disband. Individual organizers and participants in hazing will be subject to strong disciplinary action including possible immediate dismissal from the University.

Immunization Requirements

The laws of the Commonwealth of Massachusetts require full-time students born on or after January 1, 1957, to present evidence of immunization against measles, mumps, rubella, diphtheria, tetanus, and Hepatitis B series as a condition of registration for classes. Such immunization may be evidenced through an appropriate letter of verification from a licensed physician, by completion of the Immunization History section of the Report of Medical History form required of all new students entering the University, or in the case of students who graduate from high schools in Massachusetts, through forwarding a copy of the immunization transcript provided by Massachusetts high schools to students at the time of their graduation.

While in some cases, lack of immunization may be temporarily accepted, subsequent registration requires that immunization be obtained within 10 days of the first day of classes. All students are urged, therefore, to satisfy immunization requirements as soon as possible, preferably prior to registration.

In any circumstance, no full-time student born in 1957 or after may continue to be enrolled beyond 10 days after the first day of classes without the required verification.

Furthermore, effective August 2005, recently enacted Massachusetts General Laws, Chapter 76, Section 15 and related regulations of the Massachusetts Department of Public Health (105 CMR 220.770) requires all new students at public and private residential schools that provide education to students in grades 9-12 and all new full- and part-time, undergraduate and graduate students in degree granting programs at postsecondary institutions that provide or license housing, to:

- Receive information about meningococcal disease and vaccine; and
- Provide documentation of receipt of one dose of meningococcal vaccine within the last five years, or qualify for one of the exemptions to immunization established by the statute.

Non-Discrimination Policy

Western New England University is committed to the principle of equal opportunity in education and employment. The University does not discriminate on the basis of sex, race, color, creed, national origin, age, religion, sexual orientation, gender identity, gender expression, veteran status, or disability in admission to, access to, treatment in, or employment in its programs and activities. The following person has been designated to handle inquiries regarding the University's nondiscrimination policies:

The Executive Director of Human Resources and the **Career**Center
Western New England University
1215 Wilbraham Road
Springfield, MA 01119

Inquiries concerning the application of nondiscrimination policies may also be referred to the

Regional Director
Office for Civil Rights
U.S. Department of Education
33 Arch Street, Ninth Floor
Boston, MA 02110
phone (617) 289-0111, fax (617) 289-0150.

Title III of the Americans with Disabilities Act, 42 U.S.C. 12182(a) provides that no individual

shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation. As a place of public accommodation the University adheres to the stipulations of this Act. Also please see Student Disability Services on p. 387. The Office of Student Disabilities Services is located in Deliso Hall.

Selective Service Registration

All male students who either have not served on active military duty or are not members of the Reserves and/or National Guard, or are not citizens of specific Federated States or Trust Territories, upon reaching their 18th birthday must register with Selective Service.

Furthermore, under Federal Regulations, Subpart C - Statement of Educational Purpose and Selective Service Registration Status, Sections 668.31, .32, and .33, appropriate registration with Selective Service is necessary before receiving any funds under Title IV, Higher Education Act Programs. Until the student has filed the appropriate Statement of Educational Purpose, he is ineligible to receive such funding, including Perkins Loans, Direct Ford Student Loans, Pell Grants, College Work-Study, and similar federal program monies.

An appropriate Statement of Educational Purpose/Registration Compliance form is included in the application for financial aid, available through the University Student Administrative Services. This compliance form must be completed before the student can receive federal program monies.

Sexual Harassment

It is the policy of the University to maintain a working and educational environment free from all forms of sexual harassment or intimidation. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature are serious violations of University policy and will not be condoned or tolerated. Not only is sexual harassment a violation of University policy, but it may also violate Title VII of the Civil Rights Act. Any employee or student who is subjected to sexual harassment or intimidation should immediately contact the executive director of Human Resources and the **Career**Center, in the case of an employee,

or the dean of students, in the case of a student. All complaints of sexual harassment will be investigated promptly and confidentially. Any employee or student who violates this policy will be subject to appropriate action up to and including dismissal from the University. The complete policy on sexual harassment is available in Human Resources.

Smoke-Free Environment

In accordance with the provisions of the Massachusetts Clean Indoor Air Act of 1998, all residence facilities are smoke-free environments. Smoking by students and/or their guest(s) is therefore limited to the exterior of the residential units. Care should be demonstrated when doing so, including the disposal of smoking materials.

Student Right-to-Know and Campus Security Act (Clery Act)

The University is in compliance with the federal Student Right-to-Know and Campus Security Act which requires colleges to disclose graduation rates for students and to make available certain statistics and campus security policies. According to the requirements, data in these areas were tabulated beginning July 1, 1991, and reported during the summer of 1992 and each summer thereafter. It is the University's policy to provide information concerning security services available on campus. The University also practices the policy of notifying the University community as soon as possible after the commission of any crime that might portend personal danger to either students or employees. Campus crime statistics are available from the University's Department of Public Safety. Also, Student Administrative Services makes available data on graduation rates, athletic participation rates, and financial support.

Pursuant to the Campus Sex Crimes Prevention Act, any member of the Western New England University community may obtain information provided by the Commonwealth of Massachusetts as to any registered sex offender who may be enrolled or working at the University by contacting the Department of Public Safety.

Universal Health Care

The Commonwealth of Massachusetts passed the Universal Health Care Act in 1988. Its provisions require that all full-time and three-quarter-time students be covered by health insurance that contains comprehensive, specified areas. Students must either enroll in the policy provided by the University or negotiate a hard waiver stipulating that the personal coverage already possessed contains all of the required coverage. No student can be admitted to class until one of the above options has been exercised.

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Associate Justice, Massachusetts Appeals Court
Boston, MA

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Hoffmaster Group, Inc.
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(Two-year Law Alumni Trustee)
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REGIONAL MAP



TRAVEL DIRECTIONS

From the East and West (Boston, Albany) via the Massachusetts Turnpike (I-90):

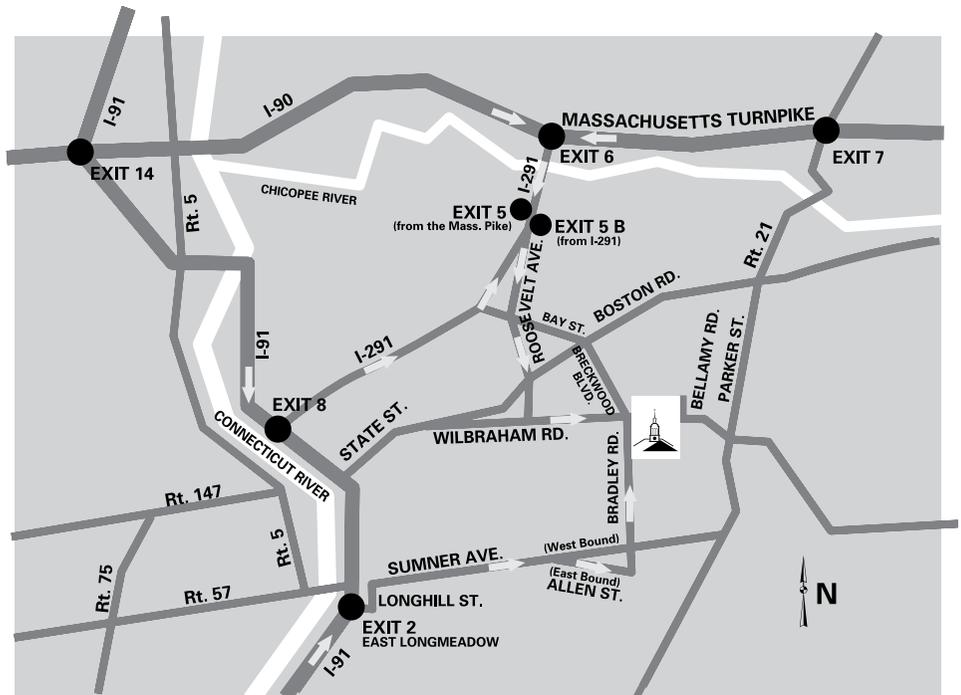
Leave the Mass. Pike at Exit 6. Turn left onto I-291. Take Exit 5 off I-291 (“Route 20-A West to East Springfield”). Bear right at the end of the exit ramp on Page Blvd. Take the left at the first light onto Roosevelt Ave. Take Roosevelt Ave. 2.5 miles to the intersection with Wilbraham Road (fifth traffic light). Turn left onto Wilbraham Road and follow it 1.5 miles through the second light. Turn right into the parking lot of the Kevin S. Delbridge Welcome Center. (Total 5.6 miles from Mass. Pike.)

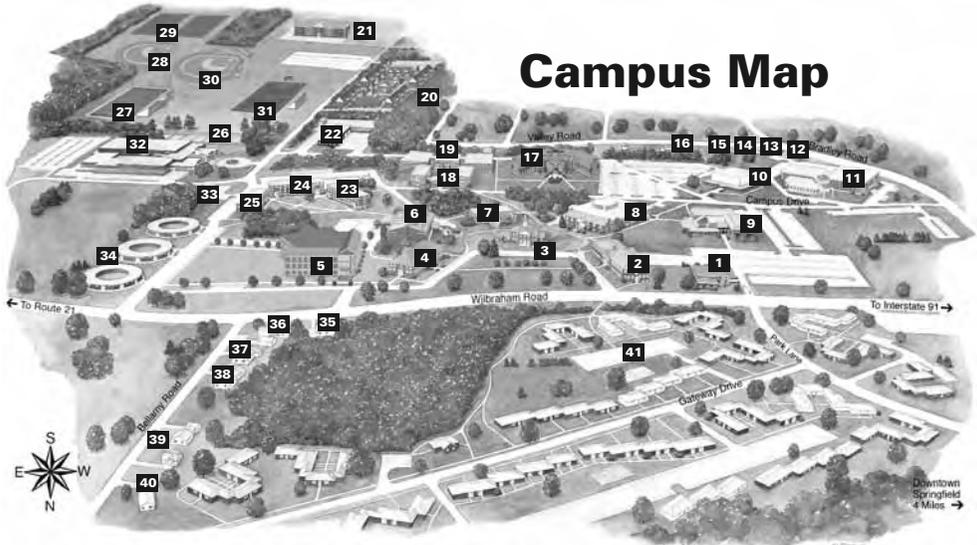
From the North via Interstate 91:

Leave I-91 at Exit 8, (“Ludlow, Boston I-291”). Travel to Exit 5B, (“East Springfield”). Turn right off of the ramp onto Page Blvd. At the first light, turn left onto Roosevelt Ave. Take Roosevelt Ave. 2.5 miles to the intersection with Wilbraham Road (fifth traffic light). Turn left onto Wilbraham Road and follow it 1.5 miles through the second light. Turn right into the parking lot of the Kevin S. Delbridge Welcome Center. (Total 8.6 miles from I-91.)

From the South via Interstate 91:

Leave I-91 at Exit 2 (“East Longmeadow”). Follow signs (“Route 83”) to the light at the intersection of Longhill and Sumner Ave. Turn right onto Sumner Ave. Travel straight on Sumner Ave. (which becomes Allen St.) to the light at the intersection of Allen St. and Bradley Road (3.2 miles). Turn left onto Bradley Road and travel 1.6 miles to Wilbraham Road and turn right. Travel 0.2 miles and turn right, into the parking lot of the Kevin S. Delbridge Welcome Center. (Total 5.7 miles from I-91.)





- 1. Kevin S. Delbridge Welcome Center**
Undergraduate Admissions
Graduate Studies & Adult Learning
Marketing and External Affairs
Office of Strategic Initiatives
Visitors Center
- 2. Herman Hall**
Classrooms/Laboratories
College of Arts and Sciences
- 3. Joseph J. Deliso Sr. Hall**
Administration
Controller's Office
Payroll
Student Disability Services
- 4. Emerson Hall**
Classrooms
- 5. Center for the Sciences and Pharmacy**
College of Pharmacy
Pharmacy, Pre-pharmacy,
Science, and Psychology
Classrooms/Laboratories
Health Services
- 6. D'Amour Library**
Academic Scheduling
Digital Learning Center
Educational Technology Center
Java City Café II
Student Administrative Services
TV Studio/Classroom
- 7. Churchill Hall**
Classrooms
Information Technology
College of Business
- 8. D. J. St. Germain Campus Center**
Academic Support Center
Bookstore
Campus Events
Campus Ministry
CareerCenter
Convenience Store

- Counseling
Dean of Students
Dining Halls
Diversity Programs
Food Court
First Year Students
& Students in Transition
Human Resources
Java City Café I
Learning Beyond the Classroom
Residence Life
Student Activities
Student Affairs
- 9. Sleith Hall**
Classrooms/Laboratories
College of Engineering
- 10. Rivers Memorial Hall**
Drama/Music Programs
Radio Station
Student Publication Offices
- 11. Blake Law Center**
School of Law
Law and Business Center for
Advancing Entrepreneurship
- 12. Law Clinics**
12 Valley Road
- 14. 20 Valley Road**
- 15. Faculty Offices**
- 16. Faculty Offices**
- 17. Commonwealth Hall**
Residence Hall
- 18. Windham Hall**
Residence Hall
- 19. LaRiviere Center**
Residential Living and Learning Center
- 20. Evergreen Village Townhouses**
Residence Townhouses
- 21. Southwood Hall**
Residence Hall

- 22. Campus Utilities Building**
Campus Post Office
Facilities Management
Printing Services
Procurement Services
- 23. Franklin Hall**
Residence Hall
- 24. Hampden Hall**
Residence Hall
- 25. Berkshire Hall**
Residence Hall
- 26. Tennis Courts**
- 27. Golden Bear Multipurpose Turf Stadium**
- 28. Softball Field**
- 29. Recreational Fields**
- 30. George E. Trelease Memorial Baseball Park**
- 31. Suprenant Field**
Soccer Field
- 32. Alumni Healthful Living Center**
Athletics
- 33. Public Safety**
- 34. Plymouth Residence Complex**
- 35. ROTC**
- 36. Advancement Office**
- 37. Faculty Offices**
- 38. Advancement Operations**
- 39. Residence Houses**
- 40. Residence House**
- 41. Gateway Village**
Resident Apartments

NOTES