

# WESTERN NEW ENGLAND COLLEGE

1215 Wilbraham Road  
Springfield, Massachusetts 01119  
Telephone (413) 782-3111  
*www1.wnec.edu*

## Fall 2006 - Spring 2007 Academic Calendar for Semesters

### 2006 Fall Semester

<b>August 28</b>	<b>Classes begin 8:00 a.m.</b>
September 1	Last day for applying for degrees awarded in October
September 4	Labor Day - No classes
September 5	Last day to add course(s) without the Instructor's permission
September 12	Last day to add course(s) or change from audit to credit or credit to audit with the Instructor's written permission
September 29	Last day to withdraw from the first 7 1/2 week course offerings (PEHR) "W" issued
October 6	In-Progress Closing of Grades (100 Level) to SAS
October 7-10	Fall Recess - No classes
October 18	2nd 7 1/2 week PEHR courses begin
October 20	In-Progress Closing of Grades (200+ Level) to SAS
October 30	Last day for withdrawing from course(s) "W" issued
November 3	Last day for applying for degrees awarded in February
November 6-21	Priority registration for Spring 2007 Semester
November 21	Last day to withdraw from the second 7 1/2 week PEHR course
November 22-26	Thanksgiving Recess
<b>December 8</b>	<b>Last day of classes</b>
December 9 & 10	Study Days
<b>December 11-15</b>	<b>Final Exam Period</b>
December 16	Final Exam "snow day" (make-up day for inclement weather)
December 19	Fall final grades due to SAS by 4:00 p.m.
Dec 25 - Jan 1	Winter Recess

### 2007 Winter Session

January 2 - 12	Winter Session (On-Campus classes meet 9 days Monday-Friday)
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### 2007 Spring Semester

January 15	Martin Luther King Day - No Classes
<b>January 16</b>	<b>Classes Begin 8:00 a.m.</b>
January 23	Last day to add course(s) without the Instructor's permission
January 30	Last day to add course(s) or change from audit to credit or credit to audit with the Instructor's written permission
February 2	Last day for applying for degrees awarded in May
February 23	Last day to withdraw from the first 7 1/2 week course offerings (PEHR) "W" issued
March 5	Registration for Summer Session begins
March 7	2nd 7 1/2 week PEHR courses begin
March 9	In-Progress closing of grades to SAS
March 19-23	Spring Break Recess
March 26	Last day for withdrawing from course(s) "W" issued
April 2-20	Priority registration for Fall Semester
April 9	No day classes - Classes resume meeting at 5:00 p.m
April 13	Last day to withdraw from the second 7 1/2 week PEHR course
<b>May 4</b>	<b>Last day of classes</b>
May 5&6	Study Days
<b>May 7-11</b>	<b>Final Exam Period</b>
May 14	Spring final grades due to SAS by noon
<b>May 19</b>	<b>Commencement for On-Campus Undergraduate Students 2:00 p.m.</b> (all resident & commuter, Springfield Campus undergraduate students)
<b>May 19</b>	<b>Commencement for On-Campus Graduate Students, Off-Campus Graduate Students, and Off-Campus Undergraduate Students 6:30 p.m.</b>

# 2006-2007 CATALOGUE

## Western New England College

1215 Wilbraham Road  
Springfield, Massachusetts 01119

Telephone 413 782-3111  
800 325-1122

[www1.wnec.edu](http://www1.wnec.edu)

*U.S. News and World Report* lists Western New England College in the top tier of its "North" category among comprehensive colleges and universities, those which provide a full range of bachelor's and master's programs. In addition, the College is featured in *Colleges of Distinction*, a new college guide and website profiling institutions characterized as America's best values in higher education.

*The official 2006-2007 Western New England College Catalogue is online at [www.wnec.edu/catalogue/](http://www.wnec.edu/catalogue/).*

*The following sections can only be found there.*

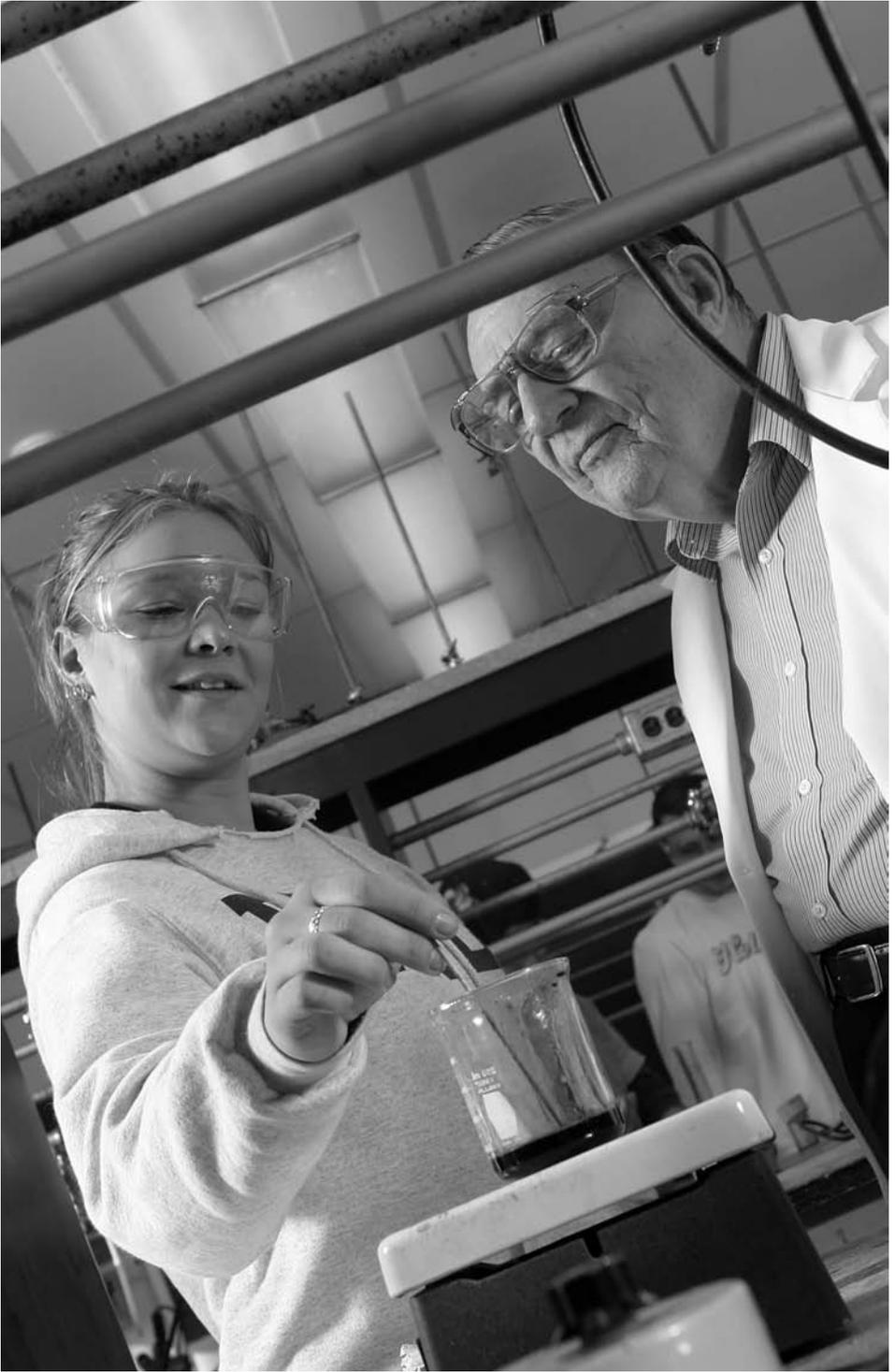
- *Undergraduate course descriptions*
- *Graduate course descriptions*
- *Scholarship information*
- *Legal matters*
- *Directories*

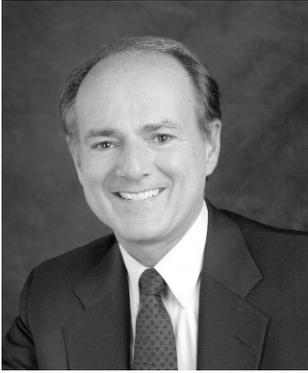


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Western New England College retains the right to change and/or amend the academic requirements as set forth in this Catalogue as needs and circumstances require. Accommodations will be made for current students should they be adversely affected by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





## A MESSAGE FROM THE PRESIDENT

This catalogue conveys a rich and powerful portrait of a special institution that provides outstanding educational opportunities for all students. The Schools 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 College School of Law too is firmly established. Over 36,000 Western New England College students have been prepared through their education to enter the world of work as responsible citizens—adaptable, entrepreneurial, and creative.

Western New England College is about more than its educational offerings; it is as much about individuals at the College 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 College.

I extend a special greeting to all who peruse this catalogue wanting to learn more about Western New England College 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 COLLEGE**

### **The College**

Western New England College 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 new and current campus began in 1958.

### **Programs, Schools, Faculty, and Students**

Western New England College offers a wide range of undergraduate degree programs as well as graduate programs in Arts & Sciences, Business, Engineering, and Law. There are 164 full-time faculty members in the College's four schools. The College also offers undergraduate and graduate degree programs at six additional sites in Massachusetts.

The College enrolls approximately 3,730 students: 2,360 full-time undergraduates, 600 in full- and part-time programs in the School of Law, and approximately 770 in part-time undergraduate and graduate degree programs offered on campus and at the College's off-campus locations. The College attracts students from 28 states and Puerto Rico. There are more than 36,000 alumni of the College.

### **Mission Statement**

#### **Purpose**

Western New England College facilitates student learning. The College prepares students to bring multiple perspectives of understanding to help them achieve balance and flexibility as proactive solution seekers in the rapidly changing global environment in which they work and live.

#### **Position**

Western New England College is committed to being a leader regionally and recognized nationally in providing integrated professional and liberal learning. The College is characterized by a synergy that results internally from the collaboration of its programs in Arts and Sciences, Business, Engineering, and Law and externally from the important strategic partnerships and alliances forged with the local and regional business, educational, and civic communities.

The College provides excellence in teaching for all students—full-time, part-time, undergraduate, graduate, and law—in an environment that proactively supports achievement and success in academics for all students and where all activities, curricular and cocurricular, are viewed as educationally purposeful. All students are regarded as a resource in excellence whose special talents and attributes will be challenged by their educational program to assure success in their professional and personal development and lives.

### **Defining Characteristics**

#### **Integrated liberal and professional learning**

This is the hallmark of an education at Western New England College. Every program at the College, whether in the liberal arts or professional studies, has two primary objectives: to combine broad knowledge and critical thinking with professionally focused depth, and to apply theory to real-world issues. Each undergraduate student's curriculum compares and contrasts the values, perspectives, and assumptions of natural science, social and behavioral science, history, cultural studies, ethics, and aesthetics, to perspectives from professional disciplines. Students are encouraged to explore offerings outside their schools and departments and take courses to enhance their majors and enrich their lives.

#### **Emphasis on learning beyond the classroom**

Learning can occur anytime, anywhere, and not just within the confines of the classroom. Opportunities for reinforcing, testing, and

applying the lessons of the classroom, as well as for developing the whole person, abound outside the classroom and course setting. Both the campus and the external community serve as learning laboratories for our students. Educationally purposeful experiences are invaluable to a student's learning and understanding of theoretical concepts.

### **Collaboration and synergy among the Schools of the College**

The conscious and sustained collaboration among and within each of the Schools results in a synergistic educational environment in which innovative programs and learning options for all students are assured and in which teaching and learning are undertaken at the intersections of disciplines, professional or liberal.

### **Strategic partnerships and alliances**

Our alumni, area businesses, other educational institutions, government, and the civic community are important allies as the College pursues its mission. Through these partnerships, these groups and individuals mutually benefit from supporting and participating in the advancement of the College's goals while, at the same time, expanding the learning opportunities and resources of the College.

## **Commitments**

### **Teaching excellence**

The College places primary emphasis on the work of the classroom while encouraging faculty scholarship, which enhances teaching. The College believes that the integration of multiple perspectives on major issues, a concern for ethical values, and an awareness of the global interactions of our times—important features of the College's programs—all have their classroom origin in the blend of scholarship and teaching characteristic of the faculty.

### **An atmosphere of personal concern**

Through its emphasis on ethical behavior, concern for every member of the community, and individual empowerment, all members of the College community—students, staff, and faculty—are viewed as valued partners in the educational mission.

### **A community that values diversity**

The College values diversity in students, staff, and faculty as an essential dimension of the learning environment.

### **Innovative programs and learning formats**

The College encourages the design of new programs and methods in all of its offerings to ensure responsiveness both to the constantly changing demands of the business and professional world and to the learning needs of all the College's students.

### **A responsive technological environment**

The College devotes significant resources to providing technology that supports the learning and performance needs of all members of the College community.

## **History of the College**

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.

In 1951, the Springfield Division of Northeastern University became Western New England College. The College was chartered on July 17, 1951. The demand for education, following the Second World War, compelled the College's officials to add academic programs at a new, larger site.

On April 26, 1956, 34 acres for the current Wilbraham Road campus were purchased. In that same year the first day program was started; it was in engineering, with 53 students enrolled. 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 College's charter was expanded in that same year to permit the College to grant the bachelor's degree in any field of business administration, science, engineering, education, and law, and certain master's degrees.

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

The College flourished on its new campus. The decades of the Sixties, Seventies, Eighties, and Nineties saw the College's academic programs expanding, its student body growing, and the addition of a number of buildings including the D'Amour Library, the S. Prestley 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 Welcome Center opened, housing the admissions office. Commonwealth Hall opened in 2003 providing housing for sophomore and freshman students. Golden Bear Stadium opened in 2003 and the George Trelease Memorial Baseball Park was completed in 2004. The campus originally consisted of 34 acres and has grown to 215 acres of contiguous property located four miles from downtown Springfield.

### **Educational Opportunities**

The College 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 College also provides academic and other support services for students needing assistance in their studies and for those with disabilities.

The College provides opportunities for study abroad in England, France, Italy, Mexico, and, in many other countries. Furthermore, the College is located in an urban community with rich educational and cultural resources, and it participates in the Cooperating Colleges of Greater Springfield (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 five major classroom-laboratory buildings that provide almost 70 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.

The College 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 College's multipurpose turf stadium serves varsity sports including football, field hockey, and lacrosse. The newly opened 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 College 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 110,000 book, journal, and media volumes and provides access to over 15,000 periodical and monographic titles via electronic databases and subscriptions. In addition to its collection of materials that supports the curricula of the College, the library has 70 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 also available 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 web page at <http://libraries.wnec.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, Compendex, Newsbank, and several databases from FirstSearch, IAC, 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 four available network printers. Off-campus access to many of the online databases is limited to users affiliated with Western New England College.

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 college 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.

## The Law Library

The School of Law library offers an extensive collection of print and electronic resources, as well as a highly dedicated staff to assist in student and faculty research efforts. The library's collection of approximately 400,000 volumes includes the newest research and reference volumes as well as reprints of important historical texts. Supplementing these resources are Internet access, audio and video collections, microform materials, and electronic research services such as LexisNexis and Westlaw, which provide access to substantial additional materials. The library is also a designated depository for selected federal government documents.

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

## Technology Services

- All students, faculty, and staff have email accounts with privileges to forward campus mail to personal email accounts. Voicemail is available through a campus telephone system.
- A campus-wide fiber network links all academic, dormitory, library, and administrative buildings.
- A student portal is available for all students (undergraduate, graduate, and law) that permits easy access to Web-mail, Manhattan Virtual Classroom software and ASAP—online grades, billing, and financial aid information.
- New wireless networks are available in the Law School, School of Engineering, Campus Center, and D'Amour Library. Further expansion is being evaluated.

## 12 *General Information*

- More than 450 PCs are located in public access areas.
- Campus-wide there are 52 classrooms with full multimedia capability- PCs connecting to the Internet, ceiling mounted projection systems, DVD/VCR players, and full sound features.
- Churchill Hall has 50 computers including a classroom and a computer lab.
- The Writing Center, located in Herman Hall, is equipped with 50 PCs in two computer rooms and includes printing services.
- The mathematics and computer science classroom and lab in Herman Hall 115 has 27 high-end PCs.
- Specialized accounting and engineering labs are equipped with 24 and 63 PCs respectively.
- D'Amour Library has access to numerous online catalogues and databases. It also has 70 public access PCs with printing services. The Library also houses a computer classroom (that faculty may reserve) with 38 PCs and dual multimedia projection technology.
- The Educational Technology Center, located on the ground level of the D'Amour Library, includes a training/conference room with ten PCs and multimedia projection technology.
- The LaRiviere Living and Learning Center is home to a state-of-the-art computer classroom with 30 PCs. Multimedia projection technologies are present in five classrooms in this facility.
- Sleith Hall has three rooms with 20 laptops each for discipline related studies.
- The Law School has eight classrooms with multimedia capabilities.
- The School of Law provides a wireless network that permits students with laptops to connect directly to the campus network and the Internet from the Law Library, classrooms, and lounges. The School also has dedicated networks connecting to external law research databases.
- The School of Law Library houses two computer labs with 23 PCs and one MAC which are reserved for law school students. There are an additional 12 public access PCs with printing services.
- Loaner Laptops for special courses are available in D'Amour and the Law School Libraries.
- D'Amour Library has a state-of-the-art 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 College 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 School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

Western New England College is the only private AACSB International accredited college in western Massachusetts. With accreditation, Western New England College is among an elite company of accredited business schools, which comprise 15 percent 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, 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, 410-347-7700 has accredited the Bachelor of Science programs in 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 College 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 School 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 College

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 College and student life. While an interview is not required, the College encourages students to arrange for a personal interview at the Admissions Office.

In addition to a campus visit and the College literature, information is available electronically at [www1.wnec.edu/admissions](http://www1.wnec.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@wnec.edu](mailto:ugradmis@wnec.edu)

### How to Apply for 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 obtain an application from the College's Undergraduate Admissions Office or complete the application online at [www1.wnec.edu/admissions](http://www1.wnec.edu/admissions).
2. The completed application form should be returned with the nonrefundable \$50 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.
5. A recommendation from a guidance counselor or teacher is required. Engineering applicants should submit a letter from a math or science teacher.

### 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 obtain an application from the College's Undergraduate Admissions Office or complete the application online at [www1.wnec.edu/admissions](http://www1.wnec.edu/admissions).
2. The completed application form should be returned with the nonrefundable \$50 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.
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 College should be submitted on the bank's stationery.
7. A recommendation from a guidance counselor or teacher is required.
8. After the Undergraduate Admissions Office has received the \$100 deposit (U.S. dollars) for tuition, an I20 Form will be issued to an accepted international student.

## Specific Requirements for the Various Schools

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:

### School of Arts and Sciences

The School 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 is required for prospective majors in biology, chemistry and forensic chemistry. In addition, one unit of physics is recommended for prospective majors in chemistry and forensic chemistry.
2. Prospective majors in chemistry and forensic chemistry are required to present three units of mathematics. Prospective majors in mathematics and computer science are required to present three units of mathematics, a fourth year is recommended.

### School of Business

The School 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.

### School of Engineering

The School 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 which includes trigonometry; one unit laboratory science; and one unit physics or chemistry (preferably both).

## When Admission Decisions Are Made

Western New England College 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 College also enrolls students mid-year. Acceptance for the January semester begins in early fall. Generally, a student is notified of the admissions decision within two weeks after the application is complete.

## 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 College'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 College 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 College. 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 School of Business requires that at least fifty percent of the business credit hours required for the business degree be earned at Western New England College.

## **Transfer Students' Degree Requirements**

Customarily, a student who has received an associate 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 College, 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 College in order to be granted a degree. Students transferring to Western New England College may follow the requirements of their chosen major using the year when they become a student at Western New England College or the year when they first matriculated at their first college if less than four years prior to the transfer to Western New England College. This decision will be made by the student and approved by the chairperson of the major program.

## **Advising for Transfer Students**

A personal consultation with an academic advisor from the school in which admission is sought, either prior to or after formal application, is encouraged. A personal consultation with an academic advisor permits the student to take part in the determination of current status as well as the planning of remaining academic work at the College.

## **Transfer Articulation Agreements**

Transfer articulation agreements have been arranged between Western New England College and various community and junior colleges. Associate 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 College.

## **Re-Admission Procedure**

Former students of the College seeking re-admission should complete the following procedure:

1. The student must submit to the Student Administrative Services Office (SAS) a request for readmission (to be reviewed by the dean of the appropriate academic school). Official transcripts of any academic work taken since leaving the College must be submitted prior to the beginning of classes in the semester in which the student wishes to register.
2. Students under academic suspension must have the approval of the dean of the academic school to which they seek readmission.
3. The student is subject to all rules, regulations, and academic requirements effective in the College at the time of readmission.

## UNDERGRADUATE ADMISSIONS FOR PART-TIME STUDY

### How to Apply for Admission to Part-time Study

The Division of Graduate Studies and Continuing Education 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 Division of Graduate Studies and Continuing Education, or electronically from the Continuing Education link at [www1.wnec.edu/continuinged](http://www1.wnec.edu/continuinged).
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.
3. Applicants may be required to complete specific college-level courses in a non-degree status prior to formal admission.
4. Students admitted to part-time status may register for either day or evening courses.

## GRADUATE ADMISSIONS

### How to Apply for Admission

Admission to all graduate degree programs at Western New England College requires an earned baccalaureate from an accredited college or university and additional materials as described below. Applicants to the part-time master's programs may be admitted for any term on a rolling admissions basis. The application process and admission to the School of Law are described in materials available directly from the School of Law.

**Graduate Transfer Credit.** Students who have earned graduate credit before they apply to Western New England College 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 comprised of 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 Non-degree Graduate Status.** Graduate credit earned at Western New England College in non-degree 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 (4 years for MBA and MSA programs). For example, an acceptable graduate course completed in the fall semester of 2004 counts toward graduation only until the end of the 2012 summer session.

### Application Procedures for Graduate Programs:

1. Obtain an application for part-time master's degree programs from the Division of Graduate Studies & Continuing Education (Division GS & CE) or electronically from the homepage at [www1.wnec.edu/gsce](http://www1.wnec.edu/gsce)

2. Submit a completed, signed application for graduate admission with the required fee to the Division of GS & CE.
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 school.
6. Applicants for graduate certificate programs should also contact the Division GS & CE for application procedures.

**School 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 middle and secondary school teachers in the specific disciplines. These programs are also available to teachers with an interest in further study in either mathematics or English and to individuals seeking a career change to teaching.

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. Applicants who have not taught must provide three letters of recommendation from persons who are qualified to comment on their potential success in teaching;
5. A current resume.

**The Master of Education in Elementary Education (MEEE)** program is designed primarily for elementary teachers who hold an initial license in the field, but is also available to all teachers who have an interest in graduate study in the areas provided by this coursework.

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;
4. Three letters of recommendation, at least one of which must be from the candidate's supervisor;
5. A current resume.

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 who fail to meet the admission standards or those desiring to take courses without the initial intent of pursuing the degrees can request provisional status, which allows them to take up to two courses in the desired program. A provisional 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. Non-degree 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.

**School 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) 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.
  - b. A satisfactory score on the Graduate Record Examination (GRE) or Law School Admission Test (LSAT) taken no more than five years prior to application date and before first graduate enrollment at Western New England College;
  - c. Professional certification, such as Certified Public Accountant, which meets Western New England College School of Business standards.
  - d. Two letters of recommendation.
3. Submission of three essays.
4. Current resume.

**School of Engineering.** For programs leading to the Master of Science in Engineering Management (MSEM), Master of Science in Electrical Engineering (MSEE), 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 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). Candidates who fail to meet this admission standard can request provisional status.

3. Two letters of recommendation from persons acquainted with the applicant's business, professional, or academic achievements.
4. An official score report of the Graduate Record Examination (GRE), if requested by the admission review committee.

**School of Law.** The School of Law offers full- and part-time programs designed to be completed in three and four years respectively. A total of 88 academic credits are required for graduation. Additional information and an application form are available by contacting:

Admissions Office, Western New England College School of Law, 1215 Wilbraham Road, Springfield, MA 01119, 800-782-6665, or email: [admissions@law.wnec.edu](mailto:admissions@law.wnec.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 admitted conditionally at the discretion of the committee. Conditionally admitted students are informed of their special requirements at the time of acceptance. Conditions may include, but are not limited to, satisfactory completion of prerequisite courses; demonstrated academic performance in graduate courses at Western New England College; and satisfactory completion of undergraduate English and/or mathematics courses.

### School of Law

Admission to 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**

Candidates for this program are required to apply to both the MBA program through the School of Business and the JD program through the School of Law.

### **Status**

Applicants to graduate programs in Arts and Sciences, Business, and Engineering at Western New England College 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.

#### **Provisional Status**

Students may be permitted to enroll in courses leading to a degree under provisional status before the application and evaluation process is complete. The provisional 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 provisional 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 non-degree status.

#### **Non-Degree Status**

Students who wish to take graduate courses outside of a degree program may be admitted as non-degree status students. Non-degree 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 College graduate courses. Non-degree students may apply a maximum of seven credits toward a degree if they complete the application process and are accepted as degree status students. Non-degree 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. Advising of non-degree students is provided through the Division of GS & CE.

## **NON-DEGREE STATUS**

### **How to Register for Courses Taken in Non-degree Status**

The Division of GS & CE offers non-degree 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 non-degree status may not be applicable to the program chosen at the time of matriculation. Non-degree students are not eligible for most types of financial aid.

### **Certificates**

Undergraduate certificates are available in chemistry, communication, and computer studies. Graduate certificates are offered in graduate study in management, computer engineering, electrical engineering, engineering management, and mechanical engineering. Information is available through the Division of GS & CE.

### **Undergraduate Non-Degree 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 College. Non-degree students must satisfy published course and may be required to submit official transcripts as proof of appropriate preparation. Advising of non-degree students is provided through the Division of Graduate Studies & Continuing Education.

### **Graduate Non-Degree Study**

Please refer to Non-Degree Status, above.



(God's scourge)

dained Tudor

## UNDERGRADUATE POLICIES, PROCEDURES, AND REQUIREMENTS FOR DEGREES

### Basic Structure of the Undergraduate Degree

At Western New England College 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 can require up to 132 credit hours.

#### Course Loads

The College 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 school in which the student is enrolled.

#### Online Course Load

Full-time undergraduate students at Western New England College, 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 College 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 College in a structured degree program.

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

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

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

**Senior:** 87 credit hours or more completed (95 or more credit hours in the School 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

Sophomore courses are numbered:

200 to 299      Lower Division

Junior and Senior courses are numbered:

300 to 499      Upper Division

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 College. A student not continually enrolled is expected to meet the requirements current at the time of readmission.

## 24 Undergraduate Academic Programs

The courses required for a degree differ with the choice of major program and the school within which that program is offered. All students are subject to three classifications of course requirements:

1. General College requirements, see p. 42.
2. School requirements designed to broaden and deepen students' knowledge of disciplines outside of their majors.
3. The requirements of a major, see p. 46.

### **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 College. Transfer hours are not included in determining the Western New England College 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 College.
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 College.
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.

### **Student Responsibilities and Academic Advising**

Academic advising at Western New England College is framed against the College 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 goals, 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 assigned on the basis of enrollment in First Year Seminar. In 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. Academic advising is provided for part-time students through the Division of Graduate Studies and Continuing Education. 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 College 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 college experience.

## **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 College. 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 Freshman & Transfer Students.

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 College attempts to offer the widest possible selection of courses each year, but the College 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 College 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 College also reserves the right to change the requirements for graduation, the tuition, and the fees charged as circumstances dictate and needs arise.

### **Change in Student's Major Degree Program**

Any change or modification of the student's major degree program requires the written permission of the student's academic dean. Concurrent registration in more than one academic program leading to separate degrees is not allowed without the written permission of the appropriate academic dean. Forms for these permissions may be obtained in the student's academic dean's office.

Course work for a student's degree program may be pursued elsewhere only with the prior written permission of the student's academic dean. Change of degree program may result in assignment to the catalogue requirements in effect at the time of the change.

Students are not permitted to pursue courses for credit on a non-degree status after having completed 36 credit hours of work at Western New England College.

### **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 freshmen 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 school'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 school'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.

Updates of the final exam schedule are posted at strategic locations around campus and on the Academic Schedule Office's website, [www1.wnec.edu/academicschedule](http://www1.wnec.edu/academicschedule)

### **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 College 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 College established a college-wide Writing and Reading Advisory Board 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 College Requirements. (A detailed description of the writing requirements appears in the English course descriptions on pp. 198). 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 College has a Writing Center and tutoring services. The Center is equipped with two computer rooms as well as print resources and a webpage. Trained writing assistants 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.

### **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 school in which they are enrolled has granted a specific written exemption. Exemptions are considered on the basis of completion of prior physical

education work at an approved college or university, prior active military service, advanced standing, physical incapacity, or other related circumstances. Only two 100-level PEHR credit hours count in the 122 credit hours total required for graduation.

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"

### **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.

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 College. 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 school. 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. 325.)

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 College**

If it becomes necessary to withdraw from the College, an official withdrawal form must be completed and filed with the Student Administrative Services (SAS) office. Students are expected to consult with the Dean of Students, the Dean of Freshman and Transfer Students, or Assistant Vice President for Graduate Studies & Continuing Education before taking such action. When

such conditions as severe illness or absence from the area prevent a student from filing the form in person, an application for withdrawal by mail is acceptable. A letter should state the reasons necessitating the withdrawal. The date on which the official withdrawal form is filed with the Student Administrative Services office is considered to be the date of withdrawal. (See the section on Withdrawals and Refunds, p. 325.)

### **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 3.30-3.79.

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 3.30-3.79.

### **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 College 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 College 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 College.

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. Non-degree students must sustain a least at 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 otherwise approved by the Dean of Freshman and Transfer Students. Following any period of suspension, students may petition for reinstatement by submitting that request to the Dean of Freshman and Transfer Students 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 Freshman and Transfer Students 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 College. 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 College 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 College 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 School or Dean of Freshman and Transfer Students 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.

Following the completion of 87 credit hours (Arts and Science 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 meet with the Assistant Dean of the appropriate School 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 College. If the stipulated conditions are not met, the student shall be suspended from the College 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 College 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 School will determine how the credits will be applied for courses taught in that school.

### **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 School of Arts and Sciences are limited to 15 credit hours, School of Business students are limited to 12 credit hours, and School 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 [afrotc@wnec.edu](mailto:afrotc@wnec.edu). You can also view the website at [www.umass.edu/afrotc](http://www.umass.edu/afrotc).

### **Army ROTC**

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

Juniors and seniors who commit to pursuing the commission receive a \$450-\$500 per month stipend while participating in ROTC. Three and four year scholarships are available in the Army program for freshmen and sophomores. 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 College ROTC building; 413-782-1332, or [usarmyrotc@wnec.edu](mailto:usarmyrotc@wnec.edu).

### **Air Force/Army ROTC College Incentive**

Western New England College will provide full room and board to any student receiving a four-year ROTC scholarship. If the student selects Gateway for residence, they will receive full room and \$1,500.

Other students, including Advance Designees, who receive ROTC scholarships after enrolling at the College, 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 College based on merit or need. In no case will the total gift aid provided by the College 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 dean of the school 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. 322.) See the academic calendar for deadline to change from "audit to credit" status or "credit to audit" status.

Graduate courses in the Schools of 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 College and who also have the listed prerequisites for the course selected. Courses in the School of Law are not available for alumni auditors. The College does not maintain any record of registration or completion of courses by alumni auditors.

## **Certificate Programs**

Western New England College 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, computer studies, criminal justice and communication can be found on p. 152. Information on graduate certificate programs in business and engineering can be found on p.275 and 282.

## **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 Student Administrative Services (SAS) office for evaluation. CLEP credit may not be used to meet upper-level course requirements.

## **Credit for Nontraditional Educational Experience**

The College 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 Division of Graduate Studies and Continuing Education for referral to Charter Oak State College where appropriate.

## **Cooperating Colleges of Greater Springfield (CCGS)**

Western New England College, 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 College, and Westfield State College.

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, wintersession, 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 College 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 College 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, personal mission statements, 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 College 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 College'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, often 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 College as freshmen, sophomores, or juniors, 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 College freshmen may also apply for admission to the Honors Program if they have compiled a 3.5 GPA in their first semester at the College. 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 College 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 College 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. At least two of their six honors courses must be at the 300 level, and at least one of them must be an interdisciplinary honors course team-taught by faculty from two different schools or disciplines. 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 must 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 College 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

School 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 School of Business.

### **International Exchange Program School of Business**

The International Exchange Program provides students an opportunity to study through exchange agreements that Western New England College has signed with some of the top universities located in countries such as France (courses taught in English), England, Scotland, and Ireland.

Students who participate in the International Exchange Program may study abroad for one semester or a full academic year. Courses taken at these universities can fulfill specific degree requirements at Western New England College. All business courses taken abroad must first be approved by the School of Business. Students pay Western New England College tuition and fees for the semester(s) they spend abroad. Financial aid, scholarships, grants or other forms of financial support and tuition payments can be used in International Exchange Program. Housing fees are paid to the host universities.

## Internships

In any discipline, qualified juniors and seniors may undertake an internship 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 School of Arts and Sciences, students are limited to six credit hours; in the School of Business and School of Engineering, students are limited to three credit hours. A student must hold at least junior standing 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, a student must make arrangements with the **CareerCenter**, prior to registration. An internship application must be completed and signed by the student, the academic advisor, the department chair, and the internship coordinator.

## 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 Schools 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 School approves the application, the student will be given a form authorizing registration for the work.

## New England Center for Children Program

Western New England College 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.

## Division of Graduate Studies & Continuing Education-Off-Campus Programs

At present, programs are offered at specific sites leading to one or more of the following degrees: Associate of Arts in Liberal Studies, Bachelor of Arts in Liberal Studies, Communications, Psychology, Sociology, Bachelor of Science in Applied Economics and Master of Science in Engineering Management.

In 2005-2006 the College offered instruction at the following sites: Norwood Junior High School, John Glenn Middle School in Bedford, Malden High School, Archbishop Williams High School in Braintree, New Bedford High School, Off-Campus Programs Campus at Devens, and at the Springfield Main Campus.

## Pre-Law and 3+3 Law Program

Western New England College has offered legal education for many years, and the Western New England College 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 College students who want to attend Western New England College School of Law can earn their bachelor's and Juris Doctor's degrees in just six years instead of seven in the 3+3 Law program. To qualify for this program, students must have a minimum 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 degree at its end. They are eligible to obtain their Juris Doctor degree 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 all 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 College. Students considering a career in law are eligible for membership in a 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, Professor William Mandel, Department of History and Political Science, at the earliest opportunity.

## **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; and either BIO 310 or CHEM 314 and 324. As early as possible, all pre-medical and pre-dental students should consult the dean of the School 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 School of Business to accelerate the completion of both the bachelors and masters degrees in business. Students can earn the popular and valuable Master of Business Administration degree with just one additional year of study. Application may be

made to this program as an incoming freshman, or anytime up to through the Junior year of study. Please see page 274 for complete program description.

## **Service Members Opportunity College**

Western New England College 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 College 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 College 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 College 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 College 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 School of Arts and Sciences, director of the Study Abroad Program, or Dr. Alfred Ingham IV, assistant director of the Study Abroad Program.

## **Summer Session and Winter Session**

Western New England College is in session throughout the year. To supplement the regular academic year, there is a summer session with courses offered both day and evening, and a wintersession 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 wintersession. Schedule information may be obtained by contacting the Office of Academic Scheduling ([www1.wnec.edu/academicsschedule](http://www1.wnec.edu/academicsschedule)), the Student Administrative Services (SAS) office, or the Office of Continuing Education.

## **Taking Courses At Another College**

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

## **Teacher Education Programs**

The philosophy of these programs is one of providing academically well-prepared students with the professional preparation necessary to be effective teachers. They emphasize skills in classroom instruction, assessment, and management. The Massachusetts Department of Education has approved all of the College'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 College 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.

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 or the appropriate program coordinator.

Licensure requires more than just meeting course requirements. It is based upon competency standards. Interested persons must get a more detailed description of the program and the alternative procedures to meet these standards. It is important to note that the designs of the following programs

reflect changes that have been made to adapt to new Massachusetts regulations that went into effect October 1, 2001. Students who transfer into the College for their junior year will not be able to complete these programs in two years.

Students who completed the program in the academic year 2004-2005, had a 100% pass rate on all Massachusetts Tests for Educator Licensure (MTEL).

## **Elementary Education Program**

Throughout the history of Western New England College, graduates have gone on to careers in education. Since the establishment of the School of Arts and Sciences in 1967, the College's Secondary Education Program has been grounded on majors in the cultures, social sciences, mathematics, and the sciences. Following this tradition, in 1997 the College initiated a teacher licensure program for students interested in preparing for careers in elementary education, grades 1-6.

Students preparing for the Elementary Teacher license must select a major in one of the prescribed liberal arts and sciences disciplines. Students enrolled in the Elementary Education Program can complete the College's General College requirements, the School of Arts and Sciences requirements, and the teacher education requirements in four years with the following majors: English, history, sociology, political studies, and psychology. Students may also major in mathematics, but may not be able to graduate within the normal four-year academic program. Therefore, undergraduates are urged to work with the Education Department early in their college careers to carefully plan their college course of study. Detailed course information sheets are available from the Coordinator of the Elementary Education Program. A student must register with 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,
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. Appropriate review sessions are offered on campus for students.

Students will be notified by letter in the spring of their junior year about their eligibility for the advanced level of the Elementary Education Program. 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 to 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.

Required courses for students enrolled in the Elementary Education Program:

1. General College Requirements
  - ENGL 132 English Composition I\*  
— and —
  - ENGL 133 English Composition II\*
  - MATH 107 Math for Elementary Educators I  
— and —
  - MATH 108 Math for Elementary Educators II
  - BIO 103 Life Sciences I (Laboratory Science)  
— and —

- PHYS 191 Basic Physics
- CS 131 Computing for the Arts and Sciences

*\*= or higher sequence*

2. Requirements of the School of Arts and Sciences  
*Humanities Requirements:*
  - MUS 101 Music Appreciation
  - ENGL 339 Children's Literature
  - ENGL 260 Literary Horizons
  - PH xxx Philosophy (3 credits)
- Behavioral and Social Science Requirements:*
  - POSC 102 American National Government
  - HIST 105 World Civilization  
— and —
  - HIST 106 World Civilization
  - HIST 111 United States History to 1877
  - GEOG 190  
— and —
  - HIST 112 United States History 1878 to the Present
  - EC 201 Introduction to Economic Issues
  - PSY 101 Introduction to Psychology
  - PEHR 163 Games Children Play (1 credit)

The sequence of education and psychology courses which must be completed for this program includes the following:

- ED 301 Principles and Problems of Education
- PSY 304 Educational Psychology
- ED 350 Teaching of Elementary Reading and Language Arts\*
- ED 375 Elementary Curriculum and Methods\*
- ED 425 Elementary Education Topics\*
- ED 479 Elementary Teaching Practicum\*\*
- ED 480 Elementary Practicum Seminar

*\*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 these three courses.

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 competency standards set down by the Massachusetts Department of Education in a 300-hour practicum.

Currently the College'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.

Successful completion of the College's state approved program and the Massachusetts Tests for Educator Licensure (MTEL) leads the graduate to 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 College'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 College students are urged to request information early in their College years directly from the Department of Education in the state(s) from which they seek an additional license.

## **Secondary Education Program**

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, business, chemistry, English, history, mathematics, and political studies.

Students selecting this career option are required to satisfy all degree requirements for a major program as well as to meet the requirements of the Secondary Education Program. It is important for students to speak

with their academic advisors early in their college careers if they intend to pursue this option. In addition to satisfying the requirements shown on the degree audit statement for the major, there could be a course or more that teacher licensure candidates have to take beyond the major requirements as shown.

Students considering this option are advised to consult with the Director of the Secondary Education Program as soon as possible.

Since it requires the integration of 22 credit hours of education course work in education into the major program, students are encouraged to start planning for it early in their academic careers. 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 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,
2. Cumulative average of at least 2.80 in all courses, including a 2.80 average in the major field and in preliminary education courses,
3. A recommendation from a faculty member in the student's major department,
4. 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.

The courses which must be completed for this program include the following:

ED 301 Principles and Problems of Education; PSY 304 Educational Psychology; ED 380 Secondary Education Topics; ED 403 Methods of Teaching in Secondary Schools; ED 409 Practicum in Secondary Teaching (9 credit hours); and ED 410 Secondary Practicum Seminar.

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.

Like the Elementary Education Program, the Secondary 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 following five years of successful teaching experience and involves completion of a Performance Assessment Program or an appropriate master's degree program.

## **Washington Semester**

Western New England College 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 Government and Politics, Journalism, Justice, Foreign Policy, Women and Public Policy, International Business and Trade, Transforming Communities, Public Law, Economic Policy, Information Technology, 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.

## GENERAL COLLEGE 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. The College 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 School 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 School 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 School.

#### 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 school will specify requirements to achieve computer competence and information literacy.

## Perspectives of Understanding

In its Mission Statement, the College 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, and Aesthetics, 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: If the integrated liberal and professional course includes one of the required perspectives, it will satisfy the requirement in that area. 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

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.

## Behavioral Science Perspective

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**

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 College's Strategic Plan commits to a goal of making learning beyond the classroom (LBC) a significant element of every student's 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.

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 reflections 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 other course based experience that would incorporate an LBC opportunity,
- 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 College's faculty or professional staff as determined by each School. Given the volume of LBC experiences processed each year, the Schools may arrange for readers who are part of the College 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 life-long 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 School will develop courses to meet its needs. See p. 32.

#### **Personal Health and Wellness**

Personal health and wellness courses focus on the theory and practice of life span wellness and fitness activities, and on the knowledge, attitudes, habits and skills needed to live well. Two one-credit courses in personal health and wellness are required of students in all majors. These courses are only required for full-time students.

## SCHOOL OF ARTS AND SCIENCES

Dean Saeed Ghahramani

Associate Dean Ann Kizanis

Assistant Dean Alfred T. Ingham IV

Technology Liaison John P.Willemain

### Programs of Study

The School of Arts and Sciences has three primary objectives:

1. To provide academic major and minor programs within the School as career preparation and as concentrations in the various fields of the liberal arts.
2. To provide the courses that satisfy general College requirements in keeping with the founding purpose of the School 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 Schools, and elective courses for the enrichment of students across the College.

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

The School 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, mathematics, political studies, psychology, or sociology; a Bachelor of Science degree with majors in biology, chemistry, computer science, criminal justice, law enforcement or psychology; and a Bachelor of Social Work degree. Programs 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 College 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 area 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, NECC internship or NECC Program 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 College. A minor may not be completed in the same discipline as the major. Descriptions of the requirements for the minors are listed on p. 147. Students wishing to take a minor must complete a form in the Office of the Dean, School of Arts and Sciences, no later than the beginning of the final semester.

### Department Chairs and Faculty

*Department of Communication and Humanities*  
Professor Emmett Barcalow, Chair

Professors Glen Ebisch, Martha Garabedian,  
Nancy Hoar, Burton Porter;

Associate Professor Jean-Marie Higiroy;

Assistant Professor Douglas Battema;

Director of Music John Cavicchia;

Professional Educator Brenda Garton;

*Department of Criminal Justice and Sociology*  
Professor Larry Field, Chair

Professor Richard Luxton;

Associate Professors John Claffey, Alfred  
Ingham, Raymond Zucco;

## 46 Undergraduate Academic Programs

Assistant Professor Michaela Simpson;  
Professional Educator Denise Kindschi  
Gosselin;

*Department of Economics*  
Professor Michael Meeropol, Chair

Professor Herbert Eskot;

Associate Professor Arthur Schiller Casimir;

Assistant Professors Michael Enz, Carlos  
Liard-Muriente, Sarinda Taengnoi;

*Department of Education*  
Associate Professor Deb Patterson, Chair

Professor Robert Klein;

Assistant Professor Molly Munkatchy;

*Department of English*  
Associate Professor Chip Rhodes, Chair

Professor Shelly Regenbaum;  
Associate Professors Janet Bowdan, Brad  
Sullivan, Delmar Wilcox;

Assistant Professors Josie Brown-Rose, Jeffrey  
Yu, Edward Wesp;

Professional Educators William Grohe, Linda  
J. Oleksak, Anne Rice; Louise Pelletier, Lisa  
Drnec-Kerr;

*Department of History and Political Science*  
Professor Marc Dawson, Chair

Professors John Anzalotti, Theodore South,  
Donald Williams, Vladimir Wozniuk;

Associate Professors John Seung-Ho Baick,  
William Mandel;

Assistant Professors Jonathan Beagle, Meri  
Clark, Peter Fairman, Catherine Plum;

*Department of Mathematics and Computer  
Science*  
Professor Dennis Luciano, Chair

Professors Saeed Ghahramani, Ann Kizanis,  
Richard Pelosi, Leh-Sheng Tang;

Associate Professors Jennifer Beineke,  
Mikhail Chkhenkeli, Lorna Hanes, Lisa  
Hansen, David Mazur, Ali Rafieymehr;

Assistant Professors Enam Hoq, Herman Lee  
Jackson II;

Professional Educators David Daniels, John  
Willemain;

*Department of Physical and Biological  
Sciences*  
Professor Lorraine Sartori, Chair

Professors Walter Coombs, Gail Fletcher,  
Robert Holdsworth, David Savickas;

Associate Professors Daniel Hatten, William  
Macanka, Karl Martini, Anne Poirot;

Assistant Professors Joel Southern,  
Alexander Wurm;

Professional Educator Karl Sternberg;

*Department of Psychology*  
Professor Dennis Kolodziejski, Chair

Professor Kathleen Dillon;

Associate Professors Chris Hakala, Denine  
Northrup, Sheralee Tershner;

Assistant Professors Jessica Carlson,  
Dongxiao Qin;

*Department of Social Work*  
Associate Professor Jeff Schrenzel, Chair

Professor Sara Weinberger;

Instructor Paula Nieman

## Requirements

Students in the School of Arts and Sciences are required to satisfy the General College Requirements, as indicated on p. 42. All students majoring within the School 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. Complete at least one more perspectives course, for a total of at least eight courses, within the area of Perspectives of Understanding on p. 43.

4. Humanities Requirement. Complete at least six additional credit hours chosen from among art, cultures, languages, literature, music, and philosophy. Of these, at least three credit hours must be in upper level literature. Note: The following courses do not count in fulfilling this requirement: 100-level English courses, COMM 320 Professional Communication, COMM 340 Business Communication, and nonliterary Special Topics courses.
5. Behavioral/Social Science Requirements. Complete at least six additional credit hours chosen from among COMM (205, 326, 348, 324) criminal justice, economics, education, geography, political science, history, international studies, psychology, social work, and sociology. From among these six credits and the three credits from the Behavioral Perspective, at least three credit hours must be in political science, economics, or International Studies 101, and three credit hours must be in psychology or sociology. Note: Introduction to Statistics for the Social Sciences does not count in fulfilling this requirement.
6. 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.

Each student's program is developed in close consultation with a faculty advisor.

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

## SCHOOL OF BUSINESS

Dean Julie Siciliano

Assistant Dean for Graduate Programs  
Harlan Spotts

Assistant Dean for Undergraduate Programs  
Paul Tarsa

### School of Business Mission Statement

Our mission is to facilitate learning about business to prepare the diverse community of students whom we serve for successful careers and productive lives. Our greatest priority is to create a varied and responsive learning environment for our students. Through an emphasis on teamwork, communication, and problem solving skills, combined with an atmosphere of personal concern for the learning needs of each student, we provide academic challenge and individual support to enable each student to strive for personal and professional excellence.

High quality in our business programs is facilitated through the integration of liberal and professional curricula, the extensive use of information technology, and learning experiences beyond the classroom. Our educational programs are designed to support our students in gaining the knowledge and skills needed to enable them to become active in their communities, and ready for the personal and professional challenges of a rapidly changing global environment.

In all our programs and processes we maintain high quality through continuous improvement. In our undergraduate programs, the goal is preparation for entry to careers and graduate studies; in our graduate programs, the goal is career enhancement. Our part-time programs at both the undergraduate and graduate levels reflect our historical and continuing commitment to the educational needs of working adults.

We are committed to faculty scholarship with primary emphasis on instructional development and applied research. Service to the College and community is valued and encouraged as an essential responsibility of every member of the faculty.

We value all our stakeholders. Our students, alumni, the faculty and staff of the College, our trustees, and the business community are important partners in our mission. We view each of these groups as an invaluable resource in our continuing efforts to enhance the learning of our students.

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

Western New England College is the only private AACSB accredited college in western Massachusetts. With accreditation, Western New England College is among an elite company of AACSB International accredited business programs.



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 multi-year review.

**Key Mission Elements:**

**Diverse community of students** – We serve students from more than 28 states and several countries, however, the vast majority of our students are primarily from the New England, New Jersey, and New York areas. We have traditional undergraduate students and working adults who are pursuing their undergraduate and graduate degrees part-time. Additionally, our students represent a wide range of levels in terms of academic preparation.

**The active integration of liberal and professional learning** – The College is committed to meaningful integration of the liberal arts and professionally oriented courses in each of its programs of study. At least 50% of every student's business program must be in nonbusiness courses. The School of Business has successfully worked with colleagues in the Arts and Sciences to develop and deliver nonbusiness courses that are appropriate for business majors. The required math sequence, economics sequence, communication courses, and the Ethics in the Professions course (delivered by the philosophy faculty) are examples of successful synergies across schools.

**The extensive use of information technology**

– Technology is widely available to students and faculty and is used extensively across the curriculum. Technology is effective as an instructional tool and as a knowledge base to adequately prepare students for career entry or career enhancement. Mainstream software packages (e.g. Microsoft Office) are utilized in key courses in the business core. In general, the Stakeholder Advisory and our alumni are key resources in this regard.

**An emphasis on learning beyond the classroom**

– LBC is a requirement for every student at the College. Opportunities include internships, cocurricular clubs and organizations, Junior Achievement, Habitat for Humanity, Mason Square Program, and other community service and cultural activities. The College sees LBC as a means for enhancing the student's readiness for transition to career entry and good citizenship. The College has created and staffed the full-time position of Director of Learning Beyond the Classroom.

**Atmosphere of personal concern**

– Every member of the faculty is charged with responsibility for assisting students with decisions about their programs, majors, and development toward their career. There is a strong norm of faculty intervention, both with advisees and with students in our courses, to ensure appropriate support, especially for student performance problems. Faculty register students for courses as part of the academic advising process.

**Committed to faculty scholarship**

– Our goal is the continuing intellectual contribution by every member of our faculty. To support this goal, there is a wide array of resources for faculty intellectual development including a program of sabbaticals, summer grants, release time, reduced course preparations, instructional grants, online course development grants, professional memberships, and travel support. Research and/or Scholarship (Intellectual Contributions) constitutes an important part of the Annual Review of each faculty member.

**Our stakeholders, important partners in our mission** – Each of our stakeholder groups is a critical source of feedback and input for innovation and improvement. Trustees, alumni, and the business community are also key sources of instructional support as teachers and speakers; of practicum, internship, networking, and employment opportunities for our students; and of service and research opportunities for our faculty.

The undergraduate curriculum for students in the School 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 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.

## Department Chairs and Faculty

*Department of Accounting and Finance*  
Associate Professor Thomas Vogel, Chair

Professors William Bosworth, Claire Bronson, May H. Lo;

Associate Professors R. Loring Carlson, John Coulter, Sharon Lee;

Assistant Professor Sang-Kyu Lee

*Department of Management*  
Associate Professor Sharienne Walker, Chair

Professors William Ferris, Peter Hess, Ned Schwartz, Harvey Shrage, Julie Siciliano;

Associate Professors Lynn Bowes-Sperry, Daniel Covell, Jeanie Forray;

*Department of Marketing and Computer Information Systems*

Associate Professor Paul Costanzo, Chair

Professors Anil Gulati, Stanley Kowalski Jr. Jerzy Letkowski, Marilyn Pelosi;

Associate Professors Elizabeth Elam, Janelle Goodnight, David Russell, Harlan Spotts;

Assistant Professors Tuncay Bayrak, Li Qin;

Professional Educators Peter Daboul, James McKeon;

## Requirements

Most majors in the School of Business lead to the degree Bachelor of Science in Business Administration. Complete requirements for each of the majors in the School of Business are specified under a separate section of this catalogue devoted to major programs. They are accounting, computer information systems, finance, general business, management, marketing, marketing communications/advertising, and sport management. Each undergraduate major in the School 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. Complete at least 33 credit hours of course work at the 300-400 level.
2. Complete at least 12 credit hours of course work at the 300-400 level in the major at Western New England College. The identification of these upper-level courses are listed under each major.
3. Apply no more than 12 credit hours of ROTC courses towards the graduation requirements.
4. Meet all of the requirements specified under Academics, Undergraduate Policies, Procedures, Requirements, and General College Requirements in this catalogue.
5. School of Business Core Requirements (80 credit hours)

**School of Business Core Requirements (80 credits)**

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

**Business Courses (39 credits)**

BUS 101	First Year Seminar*
CIS 102	Computer Tools for Business
MAN 101	Principles of Management
AC 201	Financial Reporting
MK 200	Principles of Marketing
CIS 202	Introduction to Information Systems
AC 202	Managerial Accounting
QM 201	Introduction to Business Statistics
FIN 214	Introduction to Finance
BUS 301	Integrated Business Operations
LS 301***	Legal Aspects of Business
QM 310	Quality and Operations Management
BUS 450	Business Strategy

\*Required of all entering freshman and transfer students with fewer than 15 credit hours. Transfer students with 15 or more credit hours take a general elective in its place.

\*\*\*For Sport Management majors, LS 360 fulfills this requirement.

**Non-Business Courses (41 credits)**

ENGL 132-133	English Composition I & II (6 cr.)
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**	Choice of: biology, chemistry, geology, meteorology, or physics (6 cr.)
EC 201-202	Principles of Economics I & II (6 cr.)
PSY 101	Introduction to Psychology — or —
SO 101	Introduction to Sociology
HIST xxx	Historical Perspective
COMM 201	Principles of Communication
PH 310	Ethics in the Professions
CUL xxx**	Cultural 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 non-business elective credit counted toward graduation.

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

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

**Five-year Bachelor/MBA Program**

This program allows undergraduate students in the School 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.

**Program Prerequisites:**

Satisfied after completing the undergraduate business core (QM 201, EC 201, AC 201, and FIN 214) courses with a "B" or better.

**Schedule of Courses:**

*Senior Year – Undergraduate program:*

*Fall Semester:*

Up to 12 credits of undergraduate coursework

*Graduate Coursework:*

BUS 605:	Problem Solving: Innovation and Transformation
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*Spring Semester:*

Up to 9 credits of undergraduate coursework\*

*Graduate Coursework:*

*Winter Term* (beginning January):

BUS 610: Changing Business Environment

*Spring Term* (beginning April):

MAN 600: Team Leadership

*Fifth Year – Masters Program:*

*Summer Term* (beginning July):

AC 630: Accounting for Decision Makers

CIS 610: Information Technology Management and Applications

MAN 610: Organizational Behavior and Theory

*Fall Term* (beginning October):

FIN 630: Managerial Finance

MK 640: Marketing Management

BUS 6XX Business Elective

*Winter Term* (beginning January):

QM 610: Decisions Support Models

BUS 685: Consulting Practicum

BUS 6XX: Business Elective

*Spring Term* (beginning April):

BUS 680: Strategic Management

All course work requirements will be completed by the end of June. Students walk at the graduate programs graduation ceremony, with their actual degree conferred in October of that year.

**Program Application and Admission Requirements:**

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

1. Maintain a 3.0 or higher GPA in each year of their undergraduate studies. It is important to note that this is not an overall GPA of 3.0 for their college career.
2. Complete the School of Business Graduate Studies application, essays, and recommendation forms for the MBA program by July 1st after completing their junior year of undergraduate study. All application materials should be submitted to the Graduate Studies program in the School of Business located in Churchill Hall.

3. Forward scores for the Graduate Management Admission Test (GMAT) by the July 1st application deadline listed above. Students should score 450 or higher on the GMAT.

Applicants will be notified of their acceptance into the program by August 1<sup>st</sup> and begin taking graduate courses in the Fall term.

Students pursuing the Business Bachelor's/MBA Advantage will be assigned an academic advisor in their business major during their Sophomore year of study, and will keep this advisor through completion of their MBA degree. Freshman and Sophomore business students who do not have an advisor in their major area of study should address their questions to the Assistant Dean for Graduate Studies.

Students in the Business Bachelor's/MBA Advantage program may apply to Assistant Dean of Graduate Studies requesting to substitute a graduate internship or consulting experience for one of their business elective courses. Those wishing to pursue these opportunities must earn a "B+" or better in their first three graduate courses (BUS 605, BUS 610 and MAN 600) and score 500 or higher on the GMAT.

**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 the program as Freshmen. To qualify for this opportunity, applicants must have earned a GPA of 3.5 or higher, and a 1200 or higher SAT score. Once admitted, students must maintain a college GPA of 3.3 or higher in each year of their undergraduate studies. Applicants who attain this conditional acceptance will not have to re-apply to the graduate program, or take the GMAT.

Applicants qualifying for early acceptance will automatically qualify for graduate internship courses and business consulting opportunities through the Law and Business Center for Advancing Entrepreneurship. The program schedule is as follows:

**Program Prerequisites:**

Satisfied after completing the undergraduate business core (QM 201, EC 201, AC 201, and FIN 214) courses with a "B" or better.

### Schedule of Courses:

*Senior Year – Undergraduate program:*

*Fall Semester:*

Up to 12 credits of undergraduate coursework\*

*Graduate Coursework:*

BUS 605: Problem Solving:  
Innovation and  
Transformation

*Spring Semester:*

Up to 9 credits of undergraduate coursework\*

*Graduate Coursework:*

*Winter Term* (beginning January):

BUS 610: Changing Business  
Environment

*Spring Term* (beginning April):

MAN 600: Team Leadership

*Fifth Year – Masters Program:*

*Summer Term* (beginning July):

AC 630: Accounting for Decision  
Makers

CIS 610: Information Technology  
Management and  
Applications

MAN 610: Organizational Behavior and  
Theory

*Fall Term* (beginning October):

FIN 630: Managerial Finance

MK 640: Marketing Management

BUS 6XX: Graduate Internship or Small  
Business Consulting

*Winter Term* (beginning January):

QM 610: Decisions Support Models

BUS 6XX: Graduate Internship or Small  
Business Consulting

BUS 6XX: Business Elective

*Spring Term* (beginning April):

BUS 680: Strategic Management

All course work requirements will be completed by the end of June. Students walk at the graduate programs graduation ceremony, with their actual degree conferred in October.

*Students must complete all requirements for the BSBA degree independent of the graduate coursework completed during their Senior year.*

## SCHOOL OF ENGINEERING

Dean Carl Rathmann

Assistant Dean Richard Grabiec Jr.

Graduates of the School of Engineering, now numbering more than 3,000, are active throughout the engineering profession:

- serving the engineering needs of local, national, and multinational communities and enterprises;
- applying their knowledge in an ethically responsible manner to provide solutions that meet society's needs;
- engaging in lifelong learning which keeps them abreast of contemporary issues and the state of the art in their disciplines, and are aware of how these solutions may impact society and the environment;
- functioning on engineering teams and are effective communicators inside and outside of those teams; and
- successfully pursuing advanced degrees.

They have benefited from a learning environment that:

- considers student success to be of paramount importance and to be fostered by maintaining a positive and supportive climate;
- offers personalized instruction with a high degree of faculty-student interaction;
- is practice-oriented, and therefore has strong laboratory, project, and workplace components;
- incorporates collaboration with industry as part of the undergraduate experience;
- emphasizes non-technical professional skills as well as technical competence;
- has curricula responsive to the needs of industry and society; and
- strives to make our students sensitive to the cultural and professional environments in which they work and live.

The School 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 School of Engineering recognizes that the professional education of students for such a task requires a partnership of faculty, staff, administrators and students. It is only with all partners working hard together, and with mutual respect for each other, that our common goal of excellence in preparation of students for the engineering profession can be achieved.

Students in the School of Engineering are expected to bring to this partnership

- a willingness to learn and to demonstrate their mastery of the subject material,
- the intent and motivation to graduate and to achieve their stated degree objectives as optimally as possible,
- an appropriate attitude regarding the seriousness of their studies, and
- an appreciation of the value of their education.

Throughout their academic careers in the School of Engineering, they should acquire not only the technical expertise that can be learned in the classroom and the laboratory, but also an esteem for the profession, a maturity of manner, a respect for colleagues, and a credo to guide both personal and professional behavior. These qualities are what makes a graduate of Western New England College's School of Engineering desirable.

*Faculty* members of the School of Engineering are expected to bring to the partnership the experiences of having been students themselves and then having practiced in the profession, acquiring the expertise that only practice can perfect, and, very importantly, an eagerness to share this expertise with students.

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 School 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.

Guided by the faculty's commitment to that obligation, the School of Engineering has adopted the following statements to guide its development and to declare publicly who we are, what we see ourselves becoming, our core values, our educational philosophy, and our educational objectives. These formal statements are publicly displayed throughout Sleith Hall, the home of the School of Engineering.

## **The Mission of the School of Engineering**

The mission of the School of Engineering is to provide its students with a supportive environment that facilitates the art, science, and responsibilities of engineering.

## **The Vision of the School of Engineering**

The School of Engineering seeks to become nationally recognized for graduating highly qualified engineers who upon graduation can quickly assume their professional responsibilities, be immediate contributors, be innovative practitioners in their disciplines, and be successful in advanced studies.

## The Values of the School of Engineering

The School of Engineering holds these values as core to its mission:

- maintaining curricula which emphasize problem solving skills, laboratory expertise, communication competency, interdisciplinary teamwork, and leadership, and which demand mastery of sound theoretical bases in mathematics, science and engineering fundamentals;
- assuring the relevancy of programs by utilizing communication channels among the faculty, alumni, industry leaders and other institutions to seek pertinent advice;
- developing in each student a strong sense of professionalism, a set of high ethical standards, and the pride that comes from accomplishment;
- providing an environment in which each person, including non-traditional and disadvantaged students, can achieve personal excellence as part of a lifelong commitment to learning;
- sustaining the unique qualities of the school's faculty by seeking practicing scholars with both advanced degrees and substantial professional experience;
- supporting and recognizing innovation and excellence in teaching;
- promoting applied research by the faculty and fostering scholarly interaction among faculty, college colleagues, students and practicing professionals; and
- exercising careful stewardship of resources provided to operate and improve the school's programs.

## The Educational Objective of the School of Engineering

This educational philosophy is summarized in the educational objective of the School of Engineering which is to produce engineers whose careers and professional behavior are marked consistently by:

- The highest standards of honesty and integrity;

- Creative, viable and holistic solutions that reflect concern for social, political, economic and environmental constraints and consequences;
- Personal accountability for their professional activities;
- A continuing quest for professional and personal advancement;
- A work ethic that embraces teamwork, accurate and thorough communication, and timeliness in task completion;
- An allegiance to employer and/or client; and
- A personal flexibility sufficient to adapt to rapid or major change.

## Programs of Study

The School of Engineering offers curricula leading to the degrees:

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

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.)

The degree programs are professionally accredited by the Engineering Accreditation Commission of ABET, 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, without 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 School of Arts and Science, each program also integrates liberal and professional learning to provide the balance needed by modern engineering practitioners.

The School 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 does modern practice play 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 through the School's IDEA Center.

While undergraduate courses are occasionally offered in the evenings, it is not possible to complete an entire degree program in the evening. By arrangement, time-specific needs of students are accommodated by minimizing the inconvenience to the students, as best as the school is able.

## Articulation 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 School 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, formal transfer agreements have been developed with the following community colleges: Holyoke, Hudson Valley, Greenfield, Manchester Technical, Mohawk Valley, and Springfield Technical, as well as Southern Connecticut State University. Other agreements are being developed.

## Department Chairs and Faculty

*Department of Biomedical Engineering*  
Associate Professor Steven Schreiner, Chair

Professor Judy Cezeaux;

Assistant Professor Diane Testa

*Department of Electrical Engineering*  
Associate Professor James Moriarty, Chair

Professors Stephen Crist, Ronald Musiak, Kourosh Rahnamai;

Associate Professor John Burke;

Assistant Professor Steven Northrup;

Professor Emeriti William Bradley, Rene Dube, James Masi

*Department of Industrial Engineering*  
Professor Eric Haffner, Chair

Professor Richard Grabiec;

Associate Professors Abdul Kamal, Thomas Keyser;

Assistant Professor William Brown;

Professor Emeritus J. Byron Nelson

*Department of Mechanical Engineering*  
Professor Said Dini, Chair

Professors Mohammed Khosrowjerdi, Carl Rathmann;

Associate Professors Bart Lipkens, Richard Mindek, Mary B. Vollaro;

Assistant Professor Glenn Vallee;

Professor 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, and the Chair of the department that offers the course.

## Mathematical Analysis

The School of Engineering has designated MATH 133 Calculus I, MATH 134 Calculus II, and MATH 236 Differential Equations as foundation courses (p. 89). Furthermore, each student must earn a minimum grade of "C" in at least two of these courses for graduation.

The College is committed to helping students succeed and seeks to challenge students with strong backgrounds and gives advanced placement for those who qualify.

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

### 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

#### *Spring Semester*

ENGL 133 English Composition II  
ENGR 105 Computer Program Design  
ENGR 110 Engineering Problem Solving  
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 independent 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, mathematics, science, or business.

## Learning Beyond the Classroom (Undergraduate Programs)

The College's Strategic Plan commits to a goal of making learning beyond the classroom (LBC) a significant element of every full time undergraduate student's 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.

## **DIVISION OF GRADUATE STUDIES & CONTINUING EDUCATION**

L. Douglas Kenyon, Assistant Vice President

### **Continuing Education and Off-Campus Programs**

Ida B. Wilcox, Regional Director, GS & CE

David King, Associate Director, GS & CE.

Judy Cadden, Assistant Director, Graduate Student Services

Lisa M. Vachon, Assistant Director, Undergraduate Student Services

Rayann Frayatt, Regional Director, GS & CE Off-Campus Program

### **Part-time Day and Evening Study**

#### **Undergraduate**

Western New England College has a long tradition of providing continuing education for students who seek part-time day and evening study, those who are older than 18- to 22-year-old full-time students, and those who are beginning or returning to higher education after spending time in other pursuits.

The College may accept qualified part-time students into its daytime undergraduate degree programs, with the exception of Pre-pharmacy and the Pre-physician's Assistant Programs, which require full-time study. Part-time evening degree programs are, in the School of Arts and Sciences: Criminal Justice and Liberal Studies; in the School of Business: Accounting, Computer Information Systems, General Business, Management, Online Bachelor of Business Administration; in the School of Engineering: Electrical, Electrical with Computer concentration, Industrial, Mechanical, Mechanical with Manufacturing concentration.

#### **Certificates**

Western New England College makes several certificate programs available to those who do not wish a degree, but who want specialized training that goes beyond a few courses in a subject. The undergraduate Certificate Programs in chemistry, computer

studies, and communication can be found on p. 152. Further information is available through the Office of Continuing Education.

### **Undergraduate Non-degree Courses**

Temporary non-degree status is available for students who wish to explore new subject areas before entering a degree program or earn credit prior to formal admission. This is also an option for visiting students from other colleges and universities. Qualifications include high school graduation or its equivalent, the maintaining of an average of at least 2.0 in courses taken at Western New England College and the completion of all course prerequisites. Students may enroll in a maximum of 36 credits under non-degree status. Advising and registration of non-degree students takes place in the Office of Continuing Education. Non-degree students may also apply for the certificate programs, which are described in greater detail on p. 152.

### **Professional Development**

Western New England College provides opportunities for professional development through conferences, workshops, seminars and non-credit 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.

### **Accelerated Undergraduate Degree Programs**

Western New England College offers our adult learners the opportunity to complete one of seven bachelor degree programs in an 8 week accelerated format. Courses leading to the award of a bachelor degree in Communications; Sociology; Psychology; Management; Liberal Studies; Information Technology or General Business are offered in a combination of two in class meetings evenings per week, Saturdays, or online. Students may begin their program prior to the start of any one of the five sessions offered per year. For more information and a schedule of courses visit [www1.wnec.edu/gsce/](http://www1.wnec.edu/gsce/).



# UNDERGRADUATE MAJOR PROGRAMS

## ACCOUNTING MAJOR

### School 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 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

Professor: May H. Lo

Associate Professors: R. Loring Carlson, John Coulter, Thomas Vogel

Assistant Professor: Sang-Kyu Lee

### Program Objectives

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 apply auditing standards and techniques.
4. Understand the basic concepts of federal taxation.
5. Understand, design, and implement control systems and accounting information systems in automated technology environments.

### Course of Study

1. Core Requirements for All Business Majors (80 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	Professional Communication
	— or —
COMM 340	Business Communication
EC 311	Money and Banking
	— plus —
4. Electives (15 credit hours)
 

BUS xxx	Business Elective (3 cr.)
	Non-Business Electives (12 cr.)/includes ILP (3 cr.)

Total credit hours required for graduation – 122.

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 College (not including AC 305-306). The credits from upper level accounting courses will be accepted in transfer consistent with the College's policies, provided that their completion date is nine years or less from the time of matriculation.

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.

## Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GCR	General College Requirement
BUSR	School of Business Requirement

### Freshman Year

*Fall Semester* Credit Hours

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132	English Composition I (GCR)	3
MATH 111	Analysis for Business and Economics I — or —	
MATH 123	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR) — or —	
CIS 102*	Computer Tools for Business (BUSR)	3
PEHR 151	Personal Health and Wellness (GCR)	1
		16

### *Spring Semester*

ENGL 133	English Composition II (GCR)	3
MATH 112	Analysis for Business and Economics II (GCR/BUSR) — or —	
MATH 124	Calculus I for Management, Life and Social Sciences (GCR/BUSR) Non-Business Elective (BUSR)	3
MAN 101	Principles of Management (BUSR) — or —	
CIS 102	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR) — or —	

SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GCR)	1
		16

### Sophomore Year

*Fall Semester* Credit Hours

AC 201***	Financial Reporting (BUSR)	3
MK 200***	Principles of Marketing (BUSR)	3
CIS 202***	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR) Non-business Elective (BUSR)	3
		15

### *Spring Semester*

AC 202**	Managerial Accounting (BUSR)	3
QM 201**	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 202**	Principles of Economics II (BUSR)	3
COMM 100**	Principles of Communication (BUSR)	3
		15

*Non-credit career planning — Completion of individual development/career plan required for registration for junior year.*

### Junior Year

*Fall Semester* Credit Hours

BUS 301	Integrated Business Operations (BUSR)	3
COMM 320	Professional 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 (GCR)	3
		15

### *Spring Semester*

PH 211	Business Ethics (BUSR)	3
QM 310	Quality and Operations Management (BUSR)	3
AC 419	Auditing and Assurance Services (MR)	3
AC 306	Financial Reporting III (BUSR)	3
Lab xxx NSP	xxx Natural Science Perspective (GCR)	3
		15

**Senior Year**

Credit Hours

*Fall Semester*

AC 330	Accounting Information Systems (MR)	3
LS 301	Legal Aspects of Business (BUSR)	3
AC 413	Fundamental Concepts in Taxation (MR)	3
	Non-business Elective (GCR)	3
	BUS Business Elective (MR)	3
		<hr/> 15

*Spring Semester*

CUL xxx	Cultural Perspective (GCR)	3
EC 311	Money and Banking (MR)	3
BUS 450	Business Strategy (BUSR)	3
	Non-Business Elective (GCR)	3
AC 407	Financial Reporting IV (MR)	3
		<hr/> 15

**BIOLOGY MAJOR****School 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. Students choose from two areas of concentration: General Biology or Molecular Biology.

**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**

Professors: Walter Coombs, Gail Fletcher, Robert Holdsworth, Lorraine Sartori

Professional Educator: Karl Sternberg

**General Biology Concentration 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 process and controls on the physiology of vertebrate organisms.
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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements, p. 45.

## Course of Study

- Required biology courses (30 credit hours)
 

BIO 107-108	General Biology I & II
BIO 117-118	General Biology Laboratories I & II
BIO 201	Plant Biology
BIO 210	Vertebrate Physiology
BIO 220	Vertebrate Physiology Laboratory
BIO 213	Ecology
BIO 306	Genetics
BIO 310	Cell Biology
BIO 455	Evolution
- 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
- Seven additional credit hours in biology courses at or above the 200 level (which may include CHEM 314 Biochemistry).
- Twelve to fifteen additional credit hours in math, physics, and statistics courses
 

MATH 109	Pre-calculus Mathematics	— or —
MATH 133	Calculus I (or the equivalent)	
PHYS 103-104	Elementary Physics I & II	— or —
PHYS 133	Mechanics	— and —
PHYS 134	Electricity and Magnetism	
MATH 120	Introductory Statistics for the Arts and Sciences	— or —
PSY 207	Introduction to Statistics for the Social Sciences (Does not count as mathematics for General College Requirements)	

The 2.0 required grade-point average in the major would be based upon all BIO 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.

Notes:

- \* Is a prerequisite  
 \*\* Has a prerequisite  
 MR Major Requirement  
 GCR General College Requirement  
 A&SR School of Arts and Sciences Requirement

### Freshman Year

	Credit Hours
<i>Fall Semester</i>	
BIO 107*	General Biology I (GCR/MR) 3
BIO 117*	General Biology Lab I (MR) 1
CHEM 105*	General Chemistry I (MR) 4
ENGL 132*	English Composition (GCR) 3
LA 100	First Year Seminar (GCR) 2
MATH 109	Pre-Calculus Mathematics (GCR/MR) 3
	16

### Spring Semester

BIO 108**	General Biology II (GCR/MR) 3
BIO 118**	General Biology Laboratory II (MR) 1
CHEM 106**	General Chemistry II (MR) 4
ENGL 133**	English Composition II (GCR) 3
MATH 120	Introductory Statistics for the Arts and Sciences (GCR/MR) 3
PEHR 151	Personal Health and Wellness (GCR) 1
	15

### Sophomore Year

	Credit Hours
<i>Fall Semester</i>	
BIO 201**	Plant Biology (MR) 4
CHEM 209**	Organic Chemistry I (MR) 3
CHEM 219**	Organic Chemistry Laboratory I (MR) 1
LIT xxx	Literature Requirement (A&SR) 3
HIST xxx	Historical Perspective (GCR) 3
PEHR 153-199	Lifetime Activities Series (GCR) 1
	15

*Spring Semester*

BIO 213**	Ecology (MR)	3
CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CS xxx	Computer Competence (GCR)	3
EC xxx	EC xxx (A&SR) — or —	3
HUM xxx	POSC xxx (A&SR) Humanities Elective (A&SR)	3 3
		<u>16</u>

**Junior Year***Fall Semester*

BIO 306**	Genetics (MR)	4
CUL 2xx	Cultural Studies Perspective (GCR)	3
PHYS 103	Elementary Physics I (MR)	3
ILP xxx	Integrated Liberal Professional Perspectives (GCR)	3
GEN xxx	General Elective	2
		<u>15</u>

*Spring Semester*

BIO 455**	Evolution	3
BIO 2xx**	Biology Elective (MR)	3
ART xxx	Aesthetic Perspective (GCR)	3
PHYS 104**	Elementary Physics II (MR)	3
GEN xxx	General Elective (GCR)	3
		<u>15</u>

**Senior Year***Fall Semester*

BIO 2xx	Biology Elective (MR) Area II Requirement – — or —	4
PSY xxx	Behavioral Sciences (A&SR) — or —	3
SO xxx	Perspective (GCR) Social Science Elective (A&SR)	3
BIO 210	Vertebrate Physiology	3
BIO 220	Vertebrate Physiology Laboratory	1
GEN xxx	General Elective	3
		<u>17</u>

*Spring Semester*

BIO 310**	Cell Biology (MR)	4
PH xxx	Ethical Perspective (GCR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<u>13</u>

**Molecular Biology Concentration Objectives:**

1. To demonstrate 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 understand the process and controls on the physiology of vertebrate organisms.
5. To achieve additional understanding in population biology, organismic biology, or cellular and molecular biology.
6. To develop quantitative problem solving skills and data analysis.
7. To understand the biologically important macromolecules.

**General and School Requirements**

See General College Requirements on p. 42 and School of Arts and Sciences Requirements, p. 45.

**Course of Study**

1. Required biology courses (24 credit hours)
  - BIO 107-108 General Biology I & II
  - BIO 117-118 General Biology Laboratories I & II
  - BIO 203 Microbiology
  - BIO 210 Vertebrate Physiology
  - BIO 220 Vertebrate Physiology Laboratory
  - BIO 306 Genetics
  - BIO 310 Cell Biology
  - BIO 313 Microbiology Laboratory
2. Required chemistry courses (24 credit hours)
  - CHEM 105-106 General Chemistry I & II
  - CHEM 209-210 Organic Chemistry I & II
  - CHEM 211 Analytical Chemistry
  - CHEM 219-220 Organic Chemistry Laboratories I & II
  - CHEM 221 Analytical Chemistry Laboratory
  - CHEM 314 Biochemistry
  - CHEM 324 Biochemistry Laboratory

## 64 Undergraduate Academic Programs

3. Five additional credit hours in biology courses at or above the 200 level.
4. Twelve to fifteen additional credit hours in math, physics, and statistics courses.
- |              |   |  |
|--------------|---|--|
| MATH 109     | Pre-calculus Mathematics                          |  |
|              | — or —  |  |
| MATH 133     | Calculus I (or the equivalent)                    |  |
| PHYS 103-104 | Elementary Physics I & II                         |  |
|              | — or —  |  |
| PHYS 133     | Mechanics   |  |
|              | — and —   |  |
| PHYS 134     | Electricity and Magnetism                         |  |
| MATH 120     | Introductory Statistics for the Arts and Sciences |  |

The 2.0 required grade-point average in the major would be based upon all BIO 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.

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- A&SR School of Arts and Sciences Requirement

#### Freshman Year Credit Hours

<i>Fall Semester</i>		
BIO 107	General Biology I (GCR/MR)	3
BIO 117	General Biology Lab I (MR)	1
CHEM 105	General Chemistry I (MR)	4
ENGL 132	English Composition (GCR)	3
LA 100	First Year Seminar (GCR)	2
MATH 109	Pre-Calculus Mathematics (GCR/MR)	3
		<u>16</u>

#### *Spring Semester*

BIO 108**	General Biology II (GCR/MR)	3
BIO 118**	General Biology Laboratory II (MR)	1
CHEM 106**	General Chemistry II (MR)	4
ENGL 133**	English Composition II (GCR)	3

MATH 120	Introductory Statistics for the Arts and Sciences (GCR/MR)	3
PEHR 151	Personal Health and Wellness (GCR)	1
		<u>15</u>

#### Sophomore Year Credit Hours

<i>Fall Semester</i>		
BIO 210	Vertebrate Physiology	3
BIO 220	Vertebrate Physiology Laboratory	1
CHEM 209**	Organic Chemistry I (MR)	3
CHEM 219**	Organic Chemistry Laboratory I (MR)	1
LIT xxx	Literature Requirement (A&SR)	3
HIST xxx	Historical Perspective (GCR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
		<u>15</u>

#### *Spring Semester*

BIO 203**	Microbiology (MR)	4
CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CS xxx	Computer Competence (GCR)	3
EC xxx	EC xxx (A&SR)	
	— or —	
POSC xxx	(A&SR)	3
HUM xxx	Humanities Elective (A&SR)	3
		<u>17</u>

#### Junior Year Credit Hours

<i>Fall Semester</i>		
BIO 306**	Genetics (MR)	4
CUL 2xx	Cultural Studies Perspective (GCR)	3
PHYS 103	Elementary Physics I (MR)	3
ILP xxx	Integrated Liberal Professional Perspectives (GCR)	3
GEN xxx	General Elective	2
		<u>15</u>

#### *Spring Semester*

CHEM 314**	Biochemistry (MR)	3
CHEM 324**	Biochemistry Laboratory (MR)	1
BIO 2xx**	Biology Elective (MR)	3
ART xxx	Aesthetic Perspective (GCR)	3
PHYS 104**	Elementary Physics II (MR)	3
GEN xxx	General Elective (GCR)	3
		<u>16</u>

<b>Senior Year</b>		Credit Hours
<i>Fall Semester</i>		
BIO 2xx	Biology Elective (MR)	2
CHEM 211	Analytical Chemistry (MR)	3
CHEM 221	Analytical Chemistry Laboratory (MR)	1
PSY xxx	— or —	
SO xxx	(A&SR)	
	Behavioral Sciences Perspective (GCR)	3
	Social Science Elective (A&SR)	3
GEN xxx	General Elective	3
		<hr/> 15
<i>Spring Semester</i>		
BIO 310**	Cell Biology (MR)	4
PH xxx	Ethical Perspective (GCR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 13

**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

### School 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 College 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. In the junior year, the student has the opportunity to choose a series of four "sequence elective" courses. The student is exposed to the major physiological systems during each of the final four semesters through laboratory work, courses, and through the capstone senior design project.

### Career Opportunities

The biomedical engineering program at Western New England College 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

Associate Professor: Steven Schreiner

Assistant Professor: Diane Testa

## Program Educational Objectives

Graduates of the Western New England College Biomedical Engineering Program will

1. function successfully in one of a variety of environments including industry, hospitals/clinics, graduate school, or professional school.
2. have the necessary skills to participate as a productive team members to solve engineering projects at the interface of medicine and engineering and incorporate safety, ethical, professional, and societal concerns into their designs.
3. be critical thinkers, able to defend engineering designs and concepts effectively in both written and oral communications.
4. be actively engaged in life-long learning as evidenced, for example, by participation or leadership in relevant professional societies, continuing their education, or attendance at relevant workshops, meetings, or seminars.

## Common Core

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GCR	General College Requirement
ER	Engineering Requirement

### Freshman Year

Credit Hours

#### Fall Semester

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

### Spring Semester

ENGL 133**	English Composition II (GCR/ER/MR)	3
ENGR 110*	Engineering Problem Solving (GCR/ER/MR)	2
MATH 134***	Calculus II (GCR/ER/MR)	4
ENGR 105*	Computer Program Design (GCR/ER/MR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
PHYS 134***	Electricity and Magnetism (GCR/ER/MR)	4
		<hr/> 17

### Sophomore Year

Credit Hours

#### Fall Semester

BME 201***	Foundations of Biomedical Engineering (MR)	3
BIO 107*	General Biology I (MR)	3
CHEM 105***	General Chemistry I (ER/MR)	4
ENGR 208***	Foundations of Electrical Engineering (ER/MR)	4
MATH 236***	Differential Equations (ER/MR)	3
		<hr/> 17

#### Spring Semester

BME 202***	Biomedical Systems (MR)	3
CHEM 106***	General Chemistry II (MR)	4
ENGR 206***	Engineering Mechanics (ER/MR)	3
ENGR 212***	Probability and Statistics (ER/MR)	3
MATH 235***	Calculus III (ER/MR)	3
LBC xxx	Learning Beyond the Classroom (GCR)	
		<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 (ER/MR)	3
	BME Sequence Elective (MR)	3
	General Education Requirement (GCR/ER/MR)	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
General Education Requirement <sup>1</sup> (GCR/ER/MR)	3
	<hr/> 16

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

BME 405***	BME Senior Laboratory (MR)	1
BME 437***	Senior Design Project I (MR)	3
BME 451**	Biomechanics (MR)	3
	BME Sequence Elective (MR)	3
	BME Technical Elective (MR)	3
	General Education Requirement (GCR/ER/MR)	3
		<hr/> 16

*Spring Semester*

BME 440**	BME Senior Design Project II (MR)	4
	Technical Elective (MR)	3
	BME Sequence Elective (MR)	3
	General Education Requirement (GCR/ER/MR)	3
	General Education Requirement (GCR/ER/MR)	3
LBC xxx	Learning Beyond the Classroom (GCR)	3
		<hr/> 16

<sup>1</sup> General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied. (See page 43).

<sup>2</sup> 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.

**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 433	Biomedical Signal Processing
BME 431	Advanced Bioinstrumentation

**Computer Sequence**

CPE 305	Object Oriented Design
CPE 271	Digital Design
CPE 310	Machine & Assembly Language
CPE 462	VHDL: Simulation and Synthesis

**Manufacturing Sequence (choose 4)**

IE 326	Production Planning and Control
IE 312	Engineering Economic Analysis
IE 314	Manufacturing Processes
IE 315	Quality Control and Engineering Statistics
IE 422	Industrial Safety and Ergonomics

**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

**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).

**College-Wide Requirements:** A total of five College-wide requirement courses are listed in the biomedical engineering curriculum. These courses will be used to satisfy the requirement that all Western New England College students attain a perspective on: Ethics History, Aesthetics, Integrated Liberal & 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 1000 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 & 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

## CHEMISTRY MAJOR

### School 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

Associate Professors: William Macanka, Anne Poirot

Assistant Professor: Joel Southern

### 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 and School Requirements

See General College Requirements on p. 42 and Arts and Sciences Requirements p. 45.

## 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 the faculty and deans.

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- A&SR School of Arts and Sciences Requirement

### Freshman Year Credit Hours

<i>Fall Semester</i>		
CHEM 105	General Chemistry I (GCR/MR)	4
ENGL 132	English Composition I (GCR)	3
LA 100	First Year Seminar (GCR)	2
MATH 133	Calculus I (GCR/MR)	4
PHYS 133	Mechanics (MR)	4
		17

<i>Spring Semester</i>		
CHEM 106**	General Chemistry II (GCR/MR)	4
ENGL 133**	English Composition II (GCR)	3
MATH 134**	Calculus II (GCR/MR)	4
PEHR 151	Personal Health and Wellness (GCR)	1
PHYS 134	Electricity and Magnetism (MR)	4
		16

### Sophomore Year Credit Hours

<i>Fall Semester</i>		
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 (GCR)	3
PSY/SO xxx	Behavioral Science Perspective (PSY xxx or SO xxx (A&SR))	3
		17

<i>Spring Semester</i>		
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
ENGL xxx	Literature (A&SR)	3
PEHR 153- 199**	Lifetime Activities Series (GCR)	1
	Integrated Liberal and Professional Perspective (GCR)	3
		<u>15</u>

**Junior Year** Credit Hours

*Fall Semester*

CHEM 317	Physical Chemistry I (MR)	3
CHEM 327	Physical Chemistry Laboratory I (MR)	1
CHEM 314**	Biochemistry (MR)	3
CHEM 324**	Biochemistry Laboratory (MR)	1
CUL 2xx	Cultural Studies Perspective	3
GEN xxx	General Elective	3
		<u>14</u>

*Spring Semester*

CHEM 318**	Physical Chemistry II (MR)	3
CHEM 328*	Physical Chemistry Laboratory II (MR)	1
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<u>13</u>

**Senior Year** Credit Hours

*Fall Semester*

EC/POSC xxx	Social Science Requirement— EC xxx/POSC xxx (A&SR)	3
HIST xxx	Historical Perspective (GCR)	3
PH xxx	Ethical Perspective (GCR)	3
CHEM xxx	300 or 400 CHEM Elective Social Science Elective (A&SR)	3
		<u>15</u>

*Spring Semester*

	Humanities (A&SR)	3
ARTS xxx	Aesthetics Perspective (GCR)	3
CHEM 421**	Inorganic Chemistry (MR)	3
CHEM431	Inorganic Chemistry Lab (MR)	1
GEN xxx	General Elective	3
GEN xxx	General Elective	2
		<u>15</u>

## COMMUNICATION MAJOR

### School 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, intercultural communication, and electronically mediated communication. They also learn about different approaches to research and practice within each field. Students also choose one of two tracks in which to concentrate their studies: 1) the mass media track, which emphasizes the production, reception, and interpretation of messages via electronic media, as well as the role of media institutions in society; or 2) the interpersonal communication track, 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.

#### 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 a regional public radio station, WAMC, enables our best students to write, produce, and broadcast news reports throughout western New England—an excellent springboard for broadcasting and journalism careers. Regardless of the track 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: Nancy Hoar

Associate Professor: Jean-Marie Higiro

Assistant Professor: Douglas Battema

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. 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 contemporary society.
4. To enable students to be engaged citizens in an increasingly mediated culture.

### General and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

The Communication Major requires 36 credit hours in communication courses.

All communication majors are required to take the following courses

COMM 100	Principles of Communication
COMM 102	Public Speaking
COMM 205	Mass Communication
COMM 305	Introduction To Communication Research
COMM 326	Race, Gender and Ethnicity in the Media
COMM 490	Seminar in Communication
MATH 207	Introductory Statistics for the Arts & Sciences
PH 110	Critical Thinking

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Communication majors in the mass communication track are also required to take the following courses (15 credit hours):

COMM 2xx	Introduction To Digital Editing for TV and Radio
COMM 2xx	Internet Publishing/Webpage Design I
COMM 250	TV Production
COMM 251	TV Broadcasting
COMM 324	Media Industries, Government, and Society

Communication majors in the interpersonal communication track are also required to take the following courses (15 credit hours):

COMM 315	Language & Communication
COMM 320	Professional Communication
COMM 321	Nonverbal Communication
COMM 340	Business Communication
COMM 348	Intercultural Communication

### Suggested Sequence of Courses

Notes:

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

### Mass Media Track

#### Freshman Year Credit Hours

<i>Fall Semester</i>	
CS 131	Computing for the Arts and Sciences (GCR) 3
ENGL 132	English Composition I (GCR) 3
GEN xxx	General Elective 3
LA 100	First Year Seminar (GCR) 2
MATH 1xx	Mathematics (GCR) 3
PEHR 151	Personal Health and Wellness (GCR) 1
	15

#### *Spring Semester*

COMM 100	Principles of Communication (MR) 3
COMM 102	Public Speaking (MR) 3
HIST xxx	History Requirement (GCR) 3
MATH 207	Introductory Statistics for the Arts and Sciences 3
PEHR 153-199	Lifetime Activities Series (GCR) 1
	16

#### Sophomore Year Credit Hours

<i>Fall Semester</i>	
ARII	Area II Requirement – Economics or Government or Psychology or Sociology or Communication (A&SR) 3
COMM 305	Introduction to Communication Research (MR) 3
CUL 2xx	Cultural Studies Perspective (GCR) 3
LAB xxx	Natural Science Perspective Requirement (GCR) 3
PH 110	Critical Thinking (MR) 3
	15

#### *Spring Semester*

ARTS xxx	Elements of Culture – Arts Requirement “A” (GCR) (Arts, Film, Music, or Theatre) 3
COMM 205	Mass Communication (MR) 3
COMM 2xx	Introduction to Digital Editing for TV and Radio (MR) 3
GEN xxx	General Elective 3
ILP 2xx	Integrated Liberal and Professional (GCR) 3
	15

#### Junior Year Credit Hours

<i>Fall Semester</i>	
AR II	Area II Elective (A&SR) 3
COMM 2xx	Internet Publishing/Web Page Design I (MR) 3
COMM 326	Race, Gender, & Ethnicity in Media (MR) 3
COMM 250	TV Production (MR) 3
ENGL xxx	Literature Requirement (A&SR) 3
	15

#### *Spring Semester*

COMM 3xx	COMM Elective (MR) 3
COMM 251	TV Broadcasting (MR) 3
COMM 324	Media Industries, Government, and Society (MR) 3
GEN xxx	General Electives 3
LAB xxx	Laboratory Science Requirement (GCR) 3
	15

#### Senior Year Credit Hours

<i>Fall Semester</i>	
COMM 3xx	COMM Elective 3
COMM 480	Internship in Communication 3
GEN xxx	General Electives 9
	15

*Spring Semester*

COMM 490	Seminar in Communication (MR)	3
GEN xxx	General Electives	9
ILP 3xx	Integrated Liberal and Professional (GCR)	3
		<u>15</u>

## Interpersonal Communication Track

**Freshman Year**

Credit Hours

*Fall Semester*

CS 131	Computing for the Arts and Sciences (GCR)	3
ENGL 132	English Composition I (GCR)	3
GEN xxx	General Elective	3
LA 100	First Year Seminar (GCR)	2
MATH 1xx	Mathematics (GCR)	3
PEHR 151	Personal Health and Wellness (GCR)	1

*Spring Semester*

COMM 100	Principles of Communication (MR)	3
COMM 102	Public Speaking (MR)	3
ENGL 133	English Composition II (GCR)	3
HIST xxx	History Requirement (GCR)	3
MATH 207	Introductory Statistics for the Arts and Sciences	3
PEHR 153-199	Lifetime Activities Series (GCR)	1

**Sophomore Year**

Credit Hours

*Fall Semester*

ARII	Area II Requirement – Economics or Government or Psychology or Sociology or Communication (A&SR)	3
COMM 305	Introduction to Communication Research (MR)	3
CUL 2xx	Cultural Studies Perspective (GCR)	3
LAB xxx	Natural Science Perspective Requirement (GCR)	3
PH 110	Critical Thinking (MR)	3

*Spring Semester*

ARTS xxx	Elements of Culture – Arts Requirement “A” (GCR) (Arts, Film, Music, or Theatre)	3
COMM 205	Mass Communication (MR)	3
COMM 311	Language and Communication (MR)	3
GEN xxx	General Elective	3
ILP 2xx	Integrated Liberal and Professional (GCR)	3

**Junior Year**

Credit Hours

*Fall Semester*

AR II	Area II Elective (A&SR)	3
COMM 340	Business Communication (MR)	3
COMM 321	Nonverbal Communication (MR)	3
COMM 326	Race, Gender, & Ethnicity in Media (MR)	3
ENGL xxx	Literature Requirement	3

*Spring Semester*

COMM 3xx	COMM Elective (MR)	3
COMM 320	Professional Communication (MR)	3
COMM 348	Intercultural Communication (MR)	3
GEN xxx	General Electives	3
LAB xxx	Laboratory Science Requirement (GCR)	3

**Senior Year**

Credit Hours

*Fall Semester*

COMM 3xx	COMM Elective	3
GEN xxx	General Electives	12

*Spring Semester*

COMM 490	Seminar in Communication (MR)	3
GEN xxx	General Electives	9
ILP 3xx	Integrated Liberal and Professional (GCR)	3

## COMPUTER INFORMATION SYSTEMS MAJOR

### School of Business

### General Information

The computer information systems major emphasizes application of computer systems to the solution of complex problems in business, government, and nonprofit organizations. The curriculum consists of courses designed to provide an understanding of business functions, strong computer programming fundamentals, a solid knowledge of end-user computing, and proficiency in oral and written communication. Practical applications of computer systems in finance, accounting, management, and marketing are studied.

Students have the opportunity to make extensive use of the computer systems available on campus.

### Career Opportunities

Career opportunities for computer information systems majors include programming, systems analysis, end-user computing support, information systems management, and many other information careers. Traditionally, many graduates take up programmer-analyst positions with a broad range of companies where their responsibilities include the design and development of user-oriented computer systems.

There is sufficient flexibility in the major to allow students to pursue individual interests and to choose among technically and humanistically oriented electives.

### Faculty

Professors: Anil Gulati, Stanley Kowalski Jr., Jerzy Letkowski, Marilyn Pelosi

Associate Professor: David Russell

Assistant Professor: Tuncay Bayrak

Executive in residence: Peter Daboul

### Program Objectives

1. Demonstrate competency in the design and development of Multi-user interactive applications.

Integrating applications with end-user software

2. 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

3. 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

4. Understand major information technologies in a business context:

Database management systems

Networking, communications, and the Internet

Operating systems and computer architectures

5. 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

**Course of Study**

1. Core Requirements for All Business Majors (80 credit hours) See p.50.  
— plus —
2. Required CIS courses (18 credit hours)
 

CIS 210	Technological Foundations of Information Systems Foundations of Web Technologies
CIS 300	Object Oriented Programming
CIS 321	Database Management Systems
CIS 413	Data Communication Systems and Networks
CIS 417	Systems Analysis and Design
CIS 430	Enterprise Computing
	— plus —
3. Electives ( 24 credit hours)
 

CIS 3xx	Electives* (3 cr.)
4xx CIS 480	CIS Internship (3 cr.)
	— or —
	Business Elective (3 cr.)
	Non-Business Electives (18 cr.)

*\*Not to include CIS 480*

Total credit hours required for graduation—122

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 College.

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

**Suggested Sequence of Courses**

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- BUSR School of Business Requirement

**Freshman Year**

Credit Hours

*Fall Semester*

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3
MATH 111*	Analysis for Business and Economics (GCR/BUSR)	3
	— or —	
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	
	— or —	
CIS 102 *	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		16

*Spring Semester*

ENGL 133	English Composition II (GCR)	3
MATH 112	Analysis for Business and Economics II (GCR/BUSR)	
	— or —	
MATH 124	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
	Non-Business Elective (BUSR)	3
MAN 101*	Principles of Management (BUSR)	
	— or —	
CIS 102 *	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	— or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GCR)	1
		16

**Sophomore Year**

Credit Hours

*Fall Semester*

AC 201* **	Financial Reporting (BUSR)	3
MK 200* **	Principles of Marketing (BUSR)	3
CIS 202* **	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR)	3
	Non-business Elective (BUSR)	3
		15

*Spring Semester*

AC 202**	Managerial Accounting (BUSR)	3
QM 201***	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 202**	Principles of Economics II (BUSR)	3
COMM 100	Principles of Communication (BUSR)	3
		<u>15</u>

Non-credit career planning – Completion of individual development/career plan required for registration for junior year.

**Junior Year**

Credit Hours

*Fall Semester*

BUS 301	Integrated Business Operations (BUSR)	3
PH 211	Business Ethics (BUSR)	3
	Non-business Elective (BUSR)	3
CIS 210* **	Foundations of Web Technologies (MR)	3
Lab xx	Natural Science Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

LS 301	Legal Aspects of Business (BUSR)	3
QM 310**	Quality and Operations Management (BUSR)	3
CUL xxx	Cultural Perspective (GCR)	3
CIS 300	Object-Oriented Programming	3
Lab xx/NSP xx	Natural Science Perspective (GCR)	3
		<u>15</u>

**Senior Year**

Credit Hours

*Fall Semester*

CIS 321***	Database Management Systems (MR)	3
CIS 413***	Data Communication Systems and Networks (MR)	3
CIS 3xx-4xx	CIS Elective (MR)	3
	Non-business Elective (GCR)	3
	Non-business Elective (BUSR)	3
		<u>15</u>

*Spring Semester*

BUS 450	Business Strategy (BUSR)	3
CIS 417***	Systems Analysis and Design (MR)	3
CIS 430**	Enterprise Computing (MR)	3
CIS 480	CIS Internship (MR)	3
	— or —	
	Business Elective (MR)	3
	Non-business Elective (BUSR)	3
		<u>15</u>

**COMPUTER SCIENCE MAJOR****School of Arts and Sciences****General Information**

The broad focus of study involves the understanding and design of computers and computational processes and their applications. This computer science major, which leads to a Bachelor of Science degree, puts special emphasis on the conceptual design of the written instructions, known as software, that directs computers or computer applications, and the interaction of this software code with computer machinery. The program is interdisciplinary in nature and involves course work in computer science, computer engineering, and mathematics. This capability affords students the opportunity to obtain a solid dose of hardware courses taught by engineers and mathematics courses taught by mathematicians.

The program places emphasis on object-oriented programming languages, 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.

Students choose from two areas of concentration: Information Technology (IT) or Software Development. The IT concentration prepares students to work as a systems administrator, handling the installation and maintenance of desktop software and hardware; a server administrator configuring and managing user accounts, email services, and data bases; or a network administrator overseeing the physical connectivity of Internet or intranet connections. The Software Development concentration provides a strong background in programming and software development and 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 concentration offers students uniqueness and strength in today's job market. There is sufficient flexibility to allow students to pursue additional course work in software and/or hardware development, mathematics, business, information processing, and information technology.

The program has been structured to follow the current recommendations of the Computer Science Curriculum Committee of the Association of Computing Machinery.

### Career Opportunities

Graduates in computer science develop the creativity and patterns of thought required of computer scientists and will be well prepared to go on to advanced study or to enter various professional fields. Past graduates found employment with some of the highest starting salaries of any major in the College. Organizations in business, industry, and the private sector are eager for candidates with the knowledge and skills that the graduates of this program possess. Graduates are well prepared to enter careers in software design, software development, software management, systems programming, systems analysis, technical and software support, and computer consulting, as well as network and system administration. Increasingly sophisticated uses of computers continue to be found in all areas of commerce and industry. The computer science graduate has the scientific and analytic training plus the knowledge of software and hardware, which is necessary to develop these new applications.

### Faculty

Professor: Leh-Sheng Tang

Associate Professors: Lisa Hansen, Ali Rafiymehr

Assistant Professor: 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
4. To gain experience:
  - In communication in technical and non-technical 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

## Course of Study

### Software Development Option

1. Required computer science and engineering courses (35 credit hours)
 

CS 181-182	Computer Science I & II
CS 283-284	Data Structures I & II
CS 351	Programming Languages
CS 366	Design and Analysis of Algorithms
CS 411	Operating Systems
CS 490	Software Engineering
CPE 271	Digital Design
CPE 330	Computer Organization
CPE 420	Computer Architecture
2. Required mathematics and science courses (32 Additional credit hours)
 

MATH 123-124	Calculus I & II for Management, Life, and Social Sciences
MATH 261-262	Discrete Structures I & II
MATH 306	Linear Algebra
MATH 363	Math Foundations and Methods for Computer Science
PH 204	Symbolic Logic
PH 211	Business Ethics
PHYS 133	Mechanics
PHYS 134	Electricity and Magnetism
3. Technical Elective (three credit hours).  
One additional computer science course numbered 300 or above.

## Course of Study

### Information Technology Option

1. Required computer science and engineering courses (36 credit hours)
 

CS 181-182	Computer Science I & II
CS 283-284	Data Structures I & II
CS 330	Web Applications Development
CS 360	Data Communication Systems and Networks
CS 361	Network Administration Lab
CS 411	Operating Systems
CS 412	Systems Administration Lab
CS 364/CIS 321	Database Management Systems
CPE 271	Digital Design
CPE 330	Computer Organization

2. Required mathematics and science courses (26 additional credit hours)

MATH 123-124	Calculus I & II for Management, Life, and Social Sciences
MATH 120	Introductory Statistics for Arts & Sciences
MATH 250	Applied Discrete Mathematics
PH 204	Symbolic Logic
PH 211	Business Ethics
PHYS 133	Mechanics
PHYS 134	Electricity and Magnetism

3. Internship or attainment of some significant IT certification (e.g. Java, Oracle, MCSE, RHCE). (3 credit hours)

Notes: Students with a strong secondary school mathematics background and an interest in engineering and science may elect to enroll in MATH 133-134 in lieu of MATH 123-124

Students who have not completed secondary school physics may elect to enroll in PHYS 131-132 Elements of Mechanics I & II in lieu of PHYS 133.

The 2.0 required grade point average in the major is based on all computer science, mathematics, computer engineering, and computer 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
GCR	General College Requirement
A&SR	School of Arts and Sciences Requirement

### Freshman Year

#### Fall Semester

		Credit Hours
CS 181*	Computer Science I (MR/GCR)	4
MATH 123/133*	Calculus (MR/GCR)	3/4
ENGL 132*	English Composition (GCR)	3
HIST xxx	Historical Perspective (GCR)	3
LA 100	First Year Seminar (GCR)	2
PEHR 151	Personal Health and Wellness (GCR)	1
		16/17

*Spring Semester*

CS 182* **	Computer Sciences II (MR)	4
MATH 124/134* **	Calculus II (MR/GCR)	3/4
PH 204*	Symbolic Logic (A&SR/MR)	3
ENGL 133**	English Composition II (GCR)	3
EC/POSC xxx	Behavioral Science Perspective (GCR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
		<u>17/18</u>

**Software Development Option**

**Sophomore Year**

Credit Hours

*Fall Semester*

CS 283* **	Data Structures I (MR)	3
MATH 261*	**Discrete Structures II (MR)	3
PHYS 133*	Mechanics (MR/GCR)	4
ENGL xxx	Literature Requirement (A&SR)	3
PSY/SO xxx	Behavioral Science Perspective (A&SR)	3
		<u>16</u>

*Spring Semester*

CS 284* **	Data Structures II (MR)	3
MATH 262*	**Discrete Structures II (MR)	3
PHYS 134	**Electricity and Magnetism (MR/GCR)	4
	Integrated Liberal and Professional Perspectives (GCR)	3
ARTS xxx	Aesthetic Perspective (GCR)	3
		<u>16</u>

**Junior Year**

Credit Hours

*Fall Semester*

CS 351**	Programming Languages (MR)	3
MATH 363**	Mathematical Foundations and Methods for Computer Science (MR)	3
CPE 330*	**Computer Organization (MR)	3
GEN	General Elective	3
CUL xxx	Cultural Studies Perspective(GCR)	3
		<u>15</u>

*Spring Semester*

MATH 306**	Linear Algebra(MR)	3
CS 366**	Design and Analysis of Algorithms (MR)	3
CPE 271*	Digital Design (MR)	3
GEN xxx	General Electives	3
	PSY/SO/EC/POSC/HIST/ED/CJ (A&SR)	3
		<u>15</u>

**Senior Year**

Credit Hours

*Fall Semester*

CS 411**	Operating Systems (MR)	3
PH 211**	Business Ethics (MR/GCR)	3
	Ethical Perspective	
CS xxx	Computer Science Elective(MR)	3
CPE 420**	Computer Architecture (MR)	3
GEN xxx	General Electives	3
		<u>15</u>

*Spring Semester*

CS 490**	Software Engineering (MR)	3
CS xxx	Computer Science Electives	6
GEN xxx	General Electives	4
		<u>13</u>

**Information Technology Option**

**Sophomore Year**

Credit Hours

*Fall Semester*

CS 283* **	Data Structures I (MR)	3
MATH 120	Introductory Statistics for A&S (MR)	3
PHYS 133*	Mechanics (MR/GCR)	4
ENGL xxx	Literature Requirement (A&SR)	3
PSY/SO xxx	Behavioral Science Perspective (A&SR) (PSY xxx or SO xxx)	3
		<u>16</u>

*Spring Semester*

CS 284* **	Data Structures II (MR)	3
MATH 250**	Applied Discrete Structures (MR)	3
PHYS 134**	Electricity and Magnetism (MR/GCR)	4
ILP xxx	Integrated Liberal and Professional Perspectives (GCR)	3
ARTS xxx	Aesthetic Perspective (GCR)	3
		<u>16</u>

**Junior Year**

Credit Hours

*Fall Semester*

CS 330**	Web Applications Development (MR)	3
CPE 330* **	Computer Organization (MR)	3
CS 364/CIS 32	Database Management Systems	3
GEN xxx	General Elective	3
CUL xxx	Cultural Studies Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

CS 360**	Data Communication Systems and Networks (MR)	3
CS 361**	Network Administration Lab	2
CPE 271*	Digital Design (MR)	3
GEN xxx	General Electives	6
	PSY/SO/EC/POSC/HIST/ED/CJ (A&SR)	<u>3</u>
		14

**Senior Year**

Credit Hours

*Fall Semester*

CS 411**	Operating Systems (MR)	3
CS 412**	Systems Administration Lab (MR)	2
PH 211**	Business Ethics (MR/GCR)	3
	Ethical Perspective	
GEN xxx	General Electives	6
		<u>14</u>

*Spring Semester*

CS xxx	Internship or IT Certification (MR)	3
CS xxx	Computer Science Electives	6
GEN xxx	General Electives	6
		<u>15</u>

**CREATIVE WRITING MAJOR****School 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: Shelly Regenbaum

Associate Professor: Janet Bowdan

**Program Objectives**

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.

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.

To develop the ability to recognize literary techniques in others’ works and to utilize these techniques effectively in their own work.

To develop an independent and recognizable artistic “voice” and an increased imaginative capacity.

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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

## Course of Study

ENGL 2xx	Introduction to Creative Writing
ENGL 3xx	Fiction Workshop
ENGL 3xx	Poetry Workshop
ENGL 3xx	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	Senior Seminar for Creative writers

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

# CRIMINAL JUSTICE MAJOR

## School 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

Professor: Larry Field

Associate Professors: Alfred Ingham, John Claffey

Professional Educator: Denise Kindschi Gosselin

## 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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

## Course of Study

### 1. Required criminal justice courses (39 credit hours)

CJ 101	Introduction to Criminal Justice
CJ 210	Criminology
CJ 211	Corrections
CJ 214	Drugs, Society, and the Criminal Justice System
CJ 218	Police and Society
CJ 220	Evidence
CJ 230	Criminal Law
CJ 231	Criminal Investigation
CJ 232	Criminal Procedure
CJ 234	The Judicial Process
CJ 325	Forensic Science
CJ 340	Ethical Decision-making in Law Enforcement
CJ 412	Research Methods in Criminal Justice

### 2. Other required arts and sciences courses (59 credit hours). See Note 4.

ART xxx	Required Arts Course
BIO 101	Basic Biology: Organisms
CHEM 101	Modern Chemistry I
ENGL 132	English Composition I
ENGL 133	English Composition II
ENGL 2xx-3xx	Literature
ENGL 2xx-3xx	Literature
POSC 102	American National Government
POSC 325	Constitutional Law
HIST 1xx	History
HIST 1xx	History
CUL 2XX	Elements of Culture
LA 100	First Year Seminar
MATH 115	Contemporary Mathematics I
MATH 120	Introductory Statistics for the Arts and Sciences
PH 1xx	Philosophy
PSY 101	Introduction to Psychology
SO 101	Introduction to Sociology
SO 309	Social Deviation and Control
	— or —

PSY326	Abnormal Psychology
	— or —
PSY 315	Social Environment and Human Behavior
SO 216	American Culture and the Black Experience
	— or —
SO 305	The Sociology of Urban Life
	— or —
SO 211	Sociology of Minority Groups

## Suggested Sequence of Courses

### Notes

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

### Freshman Year

#### Fall Semester

		Credit Hours
CJ 101*	Introduction to Criminal Justice (MR/A&SR)	3
SO 101*	Introduction to Sociology	
	— or —	
PSY 101	Introduction to Psychology (MR/A&SR)	3
ENGL 132*	English Composition I (GCR/MR)	3
MATH 115*	Contemporary Mathematics (GCR/MR)	3
LA 100	First Year Seminar (GCR) <sup>5</sup>	2
PEHR 151	Personal Health and Wellness (GCR)	$\frac{1}{15}$

#### Spring Semester

SO 101*	Introduction to Sociology	
	— or —	
PSY 101	Introduction to Psychology (MR)	3
CJ 218	Police and Society	
	— or —	
CJ 220	Evidence	
	— or —	
CJ 211	Corrections (MR)	3
ENGL 133	English Composition II (GCR/MR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GCR/MR)	3
BIO 101*	Basic Biology: Organisms	
	— or —	
CHEM 101*	Modern Chemistry I (GCR/MR)	3

$\frac{1}{15}$

**Sophomore Year**

		Credit Hours
<i>Fall Semester</i>		
CJ 210*	Criminology (MR)	3
CUL 2xx	Elements of Culture Cultures Requirement (GCR/MR)	3
	— or —	
PH 1xx	Ethical Perspective – Philosophy (A&SR/MR)	3
BIO 101*	Basic Biology: Organisms	
	— or —	
CHEM 101*	Modern Chemistry I (GCR/MR)	3
ENGL 2xx	Literature Requirement (MR/A&SR)	3
HIST 1xx	Historical Perspective (GCR/MR)	3
PEHR 153-199	Lifetime Activities Series(GCR)	1
		<u>16</u>

*Spring Semester*

CJ 211	Corrections	
	— or —	
CJ 218	Police and Society	
	— or —	
CJ 220	Evidence (MR)	3
POSC 102*	American Government (MR/A&SR)	3
CJ 230	Criminal Law & Procedure	3
	— or —	
CJ 340	Ethical Decision-making in Law Enforcement	
	— or —	
CJ 342	Juvenile Justice	
ENGL 2xx	Literature Requirement (MR/A&SR)	3
ART xxx	Elements of Culture – Arts Requirement	3
		<u>15</u>

**Junior Year**

		Credit Hours
<i>Fall Semester</i>		
CJ *231	Criminal Investigation	
	— or —	
CJ 232	Criminal Procedure	
	— or —	
CJ 234	The Judicial Process (GCR)	3
CS 131	Computing for the Arts and Sciences (GCR)	3
GEN xxx	General Elective	3
CJ 412	Research Methods (MR)	
	— or —	
GEN xxx	General Elective	3
CJ 480	Internship in Criminal Justice	3
	— or —	
ILP xxx	General Elective	4
		<u>16</u>

*Spring Semester*

CJ 211	Corrections	
	— or —	
CJ 218	Police and Society	
	— or —	
CJ 220	Evidence (MR)	3
CJ 230	Criminal Law	
	— or —	
CJ 340	Ethical Decision-making in Law Enforcement	
	— or —	
CJ 342	Juvenile Justice (MR)	3
POSC 325	Constitutional Law	3
SO 211	Sociology of Minority Groups (MR)	
	— or —	
SO 216	American Culture and the Black Experience	
	— or —	
SO 305	The Sociology of Urban Life (MR)	3
CJ 481	Internship in Criminal Justice	3
	— or —	
CJ 325	Forensic Science (MR)	3
		<u>15</u>

**Senior Year**

		Credit Hours
<i>Fall Semester</i>		
CJ 231	Criminal Investigation	
	— or —	
CJ 232	Criminal Procedure	
	— or —	
CJ 234	The Judicial Process (MR)	3
CJ 214	Drugs, Society, and the Criminal Justice System (MR)	3
CUL 2xx	Elements of Culture - Cultures Requirement (GCR)	
	— or —	
PH xxx	Ethical Perspective - Philosophy (MR/A&SR)	3
GEN xxx	General Elective	
	— or —	
CJ 480	Internship in Criminal Justice	3
HIST xxx	History Requirement (GCR/MR)	3
		<u>15</u>

*Spring Semester*

SO 309	Social Deviation and Control	
	— or —	
PSY 326	Abnormal Psychology	
	— or —	
PSY 315	The Social Environment and Human Behavior (MR)	3
CJ 230	Criminal Law	
	— or —	
CJ 340	Ethical Decision Making	
	— or —	
CJ 342	Juvenile Justice (MR)	3

SO211	Sociology of Minority Groups — or —	
POSC 325	Constitutional Law (MR)	3
CJ 481	Internship in Criminal Justice — or —	
CJ 325	Forensic Science (MR)	3
CJ 412	Research Methods in Criminal Justice — or —	
GEN xxx	General Elective	$\frac{3}{15}$

*Notes:*

1. Since biology and chemistry are prerequisites for Forensic Science, it is important to take these as early as possible.

2. Because upper-level courses are offered in alternate semesters, several choices are listed for each semester.

3. CJ 480/481 (Internship) is no longer required, but is highly recommended, subject to availability.

4. It is recommended that each student take 15 credit hours in 6 semesters and 17 credit hours in 2 semesters because the college requires a total of 122 credit hours credit for graduation. To fulfill graduation requirements the student must complete 39 hours of required CJ courses, 59 hours of required Arts and Sciences courses, 22 hours of electives, 2 credit hours of PEHR. The requirements of the School of Arts and Sciences and the General College Requirements are met by the required courses for the CJ major.

5. A one-credit hour elective must be taken at some point to fill in the deficit caused by LA 100's being a 2-credit course.

6. MATH 115 and 120 are sufficient for the math requirement and should be taken during the freshman year.

**ECONOMICS MAJOR****School of Arts and Sciences****General Information**

The objective of the economics program 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 College'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 non-profit 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: Herbert Eskot, Michael Meeropol

Associate Professor: Arthur Schiller Casimir

Assistant Professors: Michael Enz, Carlos Liard-Muriente, Sarinda Taengnoi

## 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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements, p. 45.

## Course of Study

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

EC 201	Principles of Economics I
EC 202	Principles of Economics II
EC 305	Macroeconomics
EC 306	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 —
QM 201	Introduction to Business Statistics — or —
PSY 207	Statistics for the Social Sciences

2. Fifteen additional credit hours selected from:
 

EC 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 Economics Department 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
- GCR General College Requirement
- A&SR School of Arts and Sciences Requirement

### Freshman Year

#### Fall Semester

		Credit Hours
EC 201*	Principles of Economics (MR/A&SR)	3
MATH 111*	Analysis for Business & Economics (GCR/MR)	3
LA 100	First Year Seminar (GCR)	2
CS 131	Computing for the Arts & Sciences (GCR)	3
ENGL 132*	English Composition I (GCR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		15

#### Spring Semester

EC 202**	Principles of Economics II (MR)	3
MATH 112**	Analysis for Business Economics II (GCR/MR)	3
ENGL 133**	English Composition II (GCR)	3
PHIL xxx	Ethical Perspective (GCR)	3
HIST xxx	Historical Perspective (GCR/MR)	3
GEN xxx	General Elective	1
PEHR 151*	Lifetime Activities Series (GCR)	1
199**		1
		17

**Sophomore Year**

Credit Hours

*Fall Semester*

EC 305**	Macroeconomics (MR)	3
MATH 120	QM 201 or PSY 207 (MR)	3
LAB xxx	Natural Science Perspective (GCR)	3
CUL 2xx	Cultural Studies Perspective (GCR)	3
PSY, SO, POSC xxx	Area II Requirement Psychology/Political Science/Sociology Requirement (MR)	3
		<u>15</u>

*Spring Semester*

EC 306**	Microeconomics (MR)	3
LAB /NSP	Natural Science Perspective (GCR)	3
ENGL xxx	Literature Requirement (SR)	3
PSY, SO, POSC xxx	Psychology/Sociology/Political Science Requirement (MR)	3
EC 3xx	Economics Elective (MR)	3
		<u>15</u>

**Junior Year**

Credit Hours

*Fall Semester*

EC 3xx**/4xx**		3
EC 3xx**/4xx**		3
PH/ART/FILM/ENGL/SPAN/FR xxx	Humanities Requirement (SR)	3
PSY, SO, POSC xxx	Psychology/Sociology/Political Science Requirement (MR)	3
ILP xxx	Comparative Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

EC 3xx**/4xx**	MUS, FILM, ART xxx	
	Aesthetic Perspective (GCR)	3
HIST/POSC/SO/PSY/CJ/SW	Social Science Requirement (GCR & SR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<u>15</u>

**Senior Year**

Credit Hours

*Fall Semester*

EC 3xx**/4xx**		3
GEN xxx	General Elective (GCR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<u>15</u>

*Spring Semester*

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
		<u>15</u>

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

# **ELECTRICAL ENGINEERING MAJOR**

**School 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 their specific interests by selecting appropriate technical or design electives. Elective areas include electronics, and land-based wireless communications, VLSI, digital signal processing (DSP), power generation and transmission, controls and robotics as well as image processing. 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.

Our labs are well equipped and all facilities are available for undergraduate use.

There are two concentrations within the program: electrical concentration and computer concentration. Both 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, 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, chemical, and consumer electronic industries.

The computer concentration emphasizes specialized course work 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.

The value added in today's products is electronics and software. Electrical engineers with computer concentration continue to be in demand in all types of public and private enterprises. The biggest employers of electrical engineering graduates with computer concentration are software companies and the aerospace and defense industries.

## **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 student's discipline. All programs are culminated by 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: Stephen Crist, Ronald Musiak, Kourosh Rahnamai

Associate Professors: John Burke, James Moriarty

Assistant Professor: Steven Northrup

Professors Emeriti: William Bradley, Rene Dube, James Masi

## Electrical Engineering Strategic Plan

### Vision

The electrical engineering program at Western New England College 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 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 school of engineering, the Electrical Engineering program will prepare our students to be proficient at putting theory into practice, capable of life-long 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 electric 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 life-long 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 multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (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
- GCR General College Requirement
- ER Engineering Requirement
- MR Major Requirement

**Freshman Year**

Credit Hours

*Fall Semester*

ENGL 132*	English Composition I (GCR/ER/MR)	3
ENGR 102*	First Year Engineering Seminar (GCR/ER/MR)	1
ENGR 103*	Introduction to Engineering (GCR/ER/MR)	4
MATH 133*	Calculus I (GCR/ER/MR)	4
PHYS 133*	Mechanics (GCR/ER/MR)	4
PEHR 151	Personal Health and Wellness (GCR)	1
		<hr style="width: 100%; border: 0.5px solid black;"/>

*Spring Semester*

ENGL 133**	English Composition II (GCR/ER/MR)	3
ENGR 105*	Computer Program Design (GCR/ER/MR)	3
ENGR 110*	Engineering Problem Solving (GCR/ER,MR)	2
MATH 134***	Calculus II (GCR/ER/MR)	4
PHYS 134***	Electricity and Magnetism (GCR/ER/MR)	4
PEHR 153-199**	Lifetime Activities Series (GCR)	1
		<hr style="width: 100%; border: 0.5px solid black;"/>

**Sophomore Year**

Credit Hours

*Fall Semester*

CHEM 105*	General Chemistry I (ER/MR)	4
EE 205***	Linear Circuits I (ER/MR)	4
ENGR 206***	Engineering Mechanics (MR)	3
MATH 236***	Differential Equations (ER/MR)	3
	General Education Requirement (GCR/ER/MR)	3
		<hr style="width: 100%; border: 0.5px solid black;"/>

*Spring Semester*

CPE 271*	Digital Design (MR)	4
EE 206***	Linear Circuits II(MR)	4
ENGR 212***	Probability and Statistics (ER/MR)	3
MATH 235***	Calculus III (ER/MR)	3
	General Education Requirement (GCR/ER/MR)	3
LBC xxx	Learning Beyond the Classroom (GCR)	
		<hr style="width: 100%; border: 0.5px solid black;"/>

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**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*

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
MATH 350***	Engineering Analysis I (MR)	3
	General Education Requirement <sup>2</sup> (GCR/ER/MR)	3
		<hr style="width: 100%; border: 0.5px solid black;"/>

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*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 322***	Electrical Engineering Laboratory II (MR)	2
	Technical Elective <sup>1</sup> (MR)	3
	General Education Requirement <sup>2</sup> (GCR/ER/MR)	3
		<hr style="width: 100%; border: 0.5px solid black;"/>

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**Senior Year**

Credit Hours

*Fall Semester*

EE 422**	Control Systems (MR)	3
EE 423**	Electronic Communication I (MR)	3
EE 427**	EE Laboratory III (MR)	2
EE 439***	Professional Awareness (MR)	1
	Design Elective <sup>3</sup> (MR)	3
	Technical Elective <sup>1</sup> (MR)	3
		<hr/> 15

*Spring Semester*

EE 440**	Senior Design Projects (MR)	3
	General Elective (MR)	3
	Technical Elective (MR)	3
	Design Elective <sup>3</sup> (MR)	3
	General Education Requirement (GCR/ER/MR)	3
LBC xxx	Learning Beyond the Classroom (GCR)	
		<hr/> 15

<sup>1</sup> Technical electives are engineering, math, science, or computer courses normally numbered 300 or above and approved by the advisor.

<sup>2</sup> General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied (See page 43).

<sup>3</sup> Design electives must be selected from a list published in each semester's course schedule and approved by the advisor.

<sup>4</sup> General elective. A course approved by the academic advisor.

Total credit hours required for graduation – 132.

The 2.0 required 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 and software systems.

**Course of Study**

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GCR	General College Requirement
ER	Engineering Requirement

**Junior Year**

Credit Hours

*Fall Semester*

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**	Object Oriented Design for Engineers (MR)	3
EE 319* **	EE Laboratory I (MR)	2
MATH 350***	Engineering Analysis I (MR)	3
		<hr/> 17

*Spring Semester*

CPE 355***	Real-time Embedded Kernals (MR)	3
CPE 360***	Microprocessor Systems & Design (MR)	3
EE 302***	Signals and Systems II (MR)	3
EE 320***	Introduction to Microelectronic Circuits II (MR)	3
EE 322***	EE Laboratory II (MR)	2
	General Education Requirement1 (GCR/ER/MR)	3
		<hr/> 17

**Senior Year**

Credit Hours

*Fall Semester*

CPE 420***	Computer Architecture (MR)	3
CPE 427**	Computer Engineering Laboratory (MR)	2
EE 439***	Professional Awareness (MR)	1
	General Education Requirement <sup>1</sup> (GCR/ER/MR)	3
	Design Elective <sup>2</sup> (MR)	3
	Technical Elective <sup>3</sup> (MR)	3
		<hr/> 15

*Spring Semester*

CPE 470**	Real-time Embedded Controls (MR)	3
EE 440**	Senior Design Projects (MR)	3
	General Elective <sup>4</sup> (MR)	3
	General Education Requirement <sup>1</sup> (GCR/ER/MR)	3
	Technical Elective <sup>3</sup> (MR)	3
LBC xxx	Learning Beyond the Classroom (GCR)	
		<hr/> 15

<sup>1</sup> General Education courses must be selected in such a way to insure that all "perspective of understanding" requirements have been satisfied. (See page 43.)

<sup>2</sup> Design electives must be selected from a list published in each semester's course schedule and approved by the advisor.

<sup>3</sup> Technical electives are engineering, math, science, or computer courses normally numbered 300 or above and approved by the advisor.

<sup>4</sup> General elective. A course approved by the academic advisor.

Total credit hours required for graduation – 132

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

**ENGLISH MAJOR****School of Arts and Sciences****General Information**

English majors at Western New England College 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 under-represented 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 College's 3+3 law program (which enables students to complete both undergraduate and law degrees in 6 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**

Professor: Shelly Regenbaum

Associate Professors: Janet Bowdan, Chip Rhodes, Brad Sullivan, Delmar Wilcox

Assistant Professors: Josie Brown-Rose, Edward Wesp, Jeffrey Yu

Professional Educators: Lisa Drnec-Kerr, William Grohe, Linda Oleksak, Louise Pelletier, Anne Rice

## **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 and School Requirements**

See General College Requirements on p. 42 and School of Arts and Sciences Requirements, p. 45.

## 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 314	Shakespeare: Plays and Poems — or —
ENGL 315	Shakespeare: The Tragedies — or —
ENGL 316	Shakespeare: The Comedies and Histories
ENGL 344	Expository Writing
ENGL 410	English Seminar

Five additional courses, of which one must treat at least one of these three categories: major author or authors, a literary period, a literary theme.

## Suggested Sequence of Courses

Notes:

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

### Freshman Year

Credit Hours

#### Fall Semester

ENGL 132	English Composition I (GCR)	3
LA 100	First Year Seminar (GCR)	2
MATH 1xx	Mathematics (GCR)	3
GEN xxx	Humanities (A&SR)	3
CS 131	Computing for the Arts and Sciences (GCR)	3
PEHR 151	Personal Health and Wellness (GCR)	1
		<u>15</u>

#### Spring Semester

ENGL 133	English Composition II (GCR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
MATH 1xx	Mathematics (GCR)	3
PH xxx	Ethical Perspective—Philosophy (GCR/A&SR)	3
POSC xxx/EC xxx	Economics/Political Science (A&SR)	3
HIST xxx	History Perspective (GCR)	3
		<u>16</u>

### Sophomore Year

Credit Hours

#### Fall Semester

ENGL xxx	Two literature survey courses from among ENGL 231, 232, 251 or 252 (MR)	6
GEN xxx	Behavioral Science Perspective (GCR)	3
ILP xxx	Integrated Liberal and Professional Perspective General Elective (A&SR)	3
LAB xxx	Natural Science Perspective (GCR)	3
		<u>15</u>

#### Spring Semester

ENGL xxx	Two Literature survey courses from among ENGL 231, 232, 251 or 252 (MR)	6
CUL 2xx	Elements of Culture – Cultures Perspective (GCR)	3
PSY xxx/ SO xxx	Psychology or Sociology (A&SR)	3
LAB/NSP xxx	Natural Science Perspective (GCR)	3
		<u>15</u>

### Junior Year

Credit Hours

#### Fall Semester

ARTS xxx	Elements of Culture – Aesthetic Perspective Arts Requirement (A&SR)	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
GEN xxx	General Electives (GCR)	7
		<u>16</u>

#### Spring Semester

ENGL 344	Expository Writing (MR)	3
ENGL xxx	English Electives (MR)	6
GEN xxx	General Electives	6
		<u>15</u>

### Senior Year

Credit Hours

#### Fall Semester

ENGL xxx	English Electives (MR)	6
GEN xxx	General Electives	9
		<u>15</u>

#### Spring Semester

ENGL 410	English Seminar (MR)	3
GEN xxx	Electives	12
		<u>15</u>

**Literature Concentration:**

- ENGL xxx English Elective (300 level or higher)
- ENGL xxx English Elective (300 level or higher)
- ENGL xxx Major Author
- ENGL xxx Period
- ENGL xxx Theme

**Secondary Education Concentration:**

- ENGL 214 World Literature I
- ENGL 333 Independent study
- ENGL xxx Major Author
- ENGL xxx Period
- ENGL xxx Theme

**Elementary Education Concentration:**

- ENGL 214 World Literature I
- ENGL 333 Independent study
- ENGL xxx Major Author
- ENGL xxx Period
- ENGL xxx English Elective

**African American/Elementary Education Concentration:**

- ENGL 223 African American Lit I
- ENGL 318 African American Lit II
- ENGL 345 Major African American Authors
- ENGL 214 World Literature I
- ENGL 333 Independent Study
- Recommended courses:*
- CUL 263 France and the French Caribbean  
— or —
- CUL 310 Race Relations: U.S. and South Africa
- ENGL 343 Literature of Africa and the African Diaspora
- ENGL 341 Caribbean Literature

**African American Concentration:**

- ENGL 223 African American Lit I
- ENGL 318 African American Lit II
- ENGL 341 Caribbean Literature
- ENGL 343 Literature of Africa and the African Diaspora
- ENGL 345 Major African American Authors
- Recommended courses:*
- SO 216 American Culture and the Black Experience
- HIST 354 Civil War and Reconstruction
- EC 106 Economics of Poverty and Discrimination
- CUL 263 France and the French Caribbean  
— or —
- CUL 310 Race Relations: U.S. and South Africa

**FINANCE MAJOR**

**School 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 Opportunities**

Finance majors find positions in brokerage firms, personal financial planning, banking, corporate financial management, underwriting, portfolio management, and insurance. Students are encouraged to take professional exams after graduation, and many graduates have gone on to earn master's degrees.

**Faculty**

Professors: William Bosworth, Claire Bronson  
Associate Professor: Sharon Lee

**Program Objectives**

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 (80 credit hours) See p. 50.  
— plus —
2. Required Finance courses (15 credit hours)
  - FIN 312 Financial Markets and Institutions
  - FIN 417/317 Investments
  - FIN 418/318 Security Analysis
  - FIN 320 Intermediate Corporation Finance
  - FIN 350/420 Advanced Corporation Finance
  - plus —
3. Other required courses (3 credit hours)
  - EC 311 Money and Banking
  - or —
  - EC 305 Macroeconomics
  - plus —
4. Electives (24 credit hours)
  - FIN or AC 3xx-4xx Elective (9 cr.)
  - Non-Business Electives (15 cr.)

Total credit hours required for graduation – 122

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 College.

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

All FIN courses, AC 201-202, and any AC electives.

### Suggested Sequence of Courses

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- BUSR School of Business Requirement

#### Freshman Year

Credit Hours

##### Fall Semester

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3
MATH 111*	Analysis for Business and Economics I (GCR/BUSR)	— or —
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	— or —
CIS 102*	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		16

##### Spring Semester

ENGL 133**	English Composition II (GCR)	3
MATH 112**	Analysis for Business and Economics II (GCR/BUSR)	— or —
MATH 124**	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
	Non-business Elective (BUSR)	3
MAN 101*	Principles of Management (BUSR)	— or —
CIS 102 *	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	— or —
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159	Lifetime Activity Series (GCR)	1
		16

**Sophomore Year**

Credit Hours

*Fall Semester*

AC 201***	Financial Reporting (BUSR)	3
MK 200***	Principles of Marketing (BUSR)	3
CIS 202***	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR)	3
	Non-business Elective (BUSR)	3
		<u>15</u>

*Spring Semester*

AC 202**	Managerial Accounting (BUSR)	3
QM 201**	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 202**	Principles of Economics II (BUSR)	3
COMM 100	Principles of Communication (BUSR)	3
		<u>15</u>

Non-credit career planning — Completion of individual development/career plan required for registration for junior year.

**Junior Year**

Credit Hours

*Fall Semester*

BUS 301	Integrated Business Operations (BUSR)	3
FIN 312	Financial Markets and Institutions (MR)	3
FIN 320	Intermediate Corporate Finance (BUSR)	3
EC 311	Money and Banking (MR)	3
	— or —	
EC 305	Macroeconomics (MR)	3
QM 310	Quality and Operations Management (MR)	3
		<u>15</u>

*Spring Semester*

LS 301	Legal Aspects of Business (BUSR)	3
FIN 350/420	Advanced Corporate Finance (MR)	3
FIN/AC 3xx-4xx	Finance or Accounting Elective (MR)	3
	Non-Business Elective (BUSR)	3
Lab xx	Natural Science Perspective (GCR)	3
		<u>15</u>

**Senior Year**

Credit Hours

*Fall Semester*

FIN 417/317	Investments	3
Lab xx	Natural Science Perspective (GCR)	3
PH 211	Business Ethics	3
FIN/AC 3xx-4xx	Finance or Accounting Elective (MR)	3
	Non-business Elective (GCR)	3
CUL xxx	Cultural Perspective	3
		<u>15</u>

*Spring Semester*

BUS 450	Business Strategy (BUSR)	3
FIN 418/318	Security Analysis	3
FIN/AC 3xx-4xx	Finance or Accounting Elective (MR)	3
	Non-business Elective (BUSR)	3
ILP xxx	Integrated Liberal and Professional Perspective	3
		<u>15</u>

## FORENSIC CHEMISTRY MAJOR

### School 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: Walter Coombs, Gail Fletcher, Robert Holdsworth, Lorraine Sartori, David Savickas

Associate Professors: Daniel Hatten, William Macanka, Karl Martini, Anne Poirot

Assistant Professors: Joel Southern, Alexander Wurm

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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

### Course of Study

1. Required Science courses:(44 credit hours)
 

BIO 107	General Biology I
BIO 117	General Biology Laboratory I
BIO 401	Recombinant DNA/Fingerprinting
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
CHEM302	Toxicology
PHYS 103	Elementary Physics I
PHYS 104	Elementary Physics II 3
CHEM 314-324	Biochemistry and Laboratory

2. Required Forensic/Criminal Justice courses  
(25)

CJ 101	Introduction to Criminal Justice
CJ 220	Evidence
CJ 231	Criminal Investigation
CJ 234	The Judicial Process
CJ 325	Forensic Science
CJ 340	Ethical Decision-Making
FS 426	Forensic Science II with laboratory
FS480	Forensic Science Internship

## 3. Required courses in Math and Computer Science (9)

MATH 123	Calculus I
MATH 207	Introductory Statistics for the Arts and Sciences
CS XXX	Computer Science

The 2.0 required grade-point average in the major will be based upon all BIO, CHEM, CJ, 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
GCR	General College Requirement
A&SR	School of Arts and Sciences Requirement

### Freshman Year

<i>Fall Semester</i>		Credit Hours
BIO 107*	General Biology I (GCR/MR)	3
BIO 117*	General Biology Laboratory I (MR)	1
CHEM 105*	General Chemistry I (MR)	4
ENGL 132	English Composition (GCR)	3
LA 100	First Year Seminar (GCR)	2
MATH 123	Calculus I Mathematics (GCR/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 (GCR)	3
MATH 207	Statistics (GCR/MR)	3
PEHR 151	Personal Health and Wellness (GCR)	1
		<hr/> 14

### Sophomore Year

<i>Fall Semester</i>		Credit Hours
CHEM 209**	Organic Chemistry I (MR)	3
CHEM 219**	Organic Chemistry Laboratory I (MR)	1
EC or GO	Social Science Requirement (A&SR)	3
LIT xxx	Literature (A&SR)	3
PH xxx	Ethical Perspective (GCR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
		<hr/> 14

### Spring Semester

CJ 220	Evidence (MR)	3
CHEM 210**	Organic Chemistry II (MR)	3
CHEM 220**	Organic Chemistry Laboratory II (MR)	1
CUL xxx	Cultural Studies Perspective	3
CS xxx	Computer Competence	3
HIST xxx	Historical Perspective (GCR)	3
		<hr/> 16

### Junior Year

<i>Fall Semester</i>		Credit Hours
BIO 401	Recombinant DNA/Fingerprinting (MR)	3
CHEM 211	Analytical Chemistry (MR)	3
CHEM 221	Analytical Chemistry Laboratory (MR)	1
CJ 231	Criminal Investigation (MR)	3
XXX	General Elective	3
PHYS 103	Elementary Physics I (MR)	3
		<hr/> 16

### Spring Semester

PHYS 104	Elementary Physics II	3
CHEM314/24	Biochemistry / Biochemistry Lab (MR)	4
ARTS xxx	Aesthetics Perspective (GCR)	3
CHEM 302	Toxicology (MR)	3
CJ 234	The Judicial Process (MR)	3
		<hr/> 16

**Senior Year**

Credit Hours

*Fall Semester*

CHEM312, 322	Instrumental Analysis and Laboratory (MR)	4
XXX	General Elective	4
HUMR xxx	Humanities Requirement	3
CJ 325	Forensic Science (MR)	3
		<hr/>
		14

*Spring Semester*

CJ 340	Ethical Decision-Making (MR)	3
FS426	Forensic Science II with Laboratory (MR)	4
FS 480	Forensic Science Internship (MR)	3
PSY or SO	Behavioral Studies Perspective (GCR)	3
ILP xxx	Integrated Liberal and Prof. Perspective (GCR)	3
		<hr/>
		16

**Total= 122****GENERAL BUSINESS MAJOR****School 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.

**Career Opportunities**

General Business majors are prepared to enter the business world in most entry level positions in corporations and agencies in the public sector. Since their background is broad, they 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 School of Business.

**Program Objectives**

1. Prepare students to assume positions of responsibility in business and other organizations.
2. Provide students with the knowledge and skills necessary to understand and manage organizational goals, and to lead people to work together toward the attainment of those goals.
3. Prepare students to communicate effectively in a global and diverse environment.
4. Provide students with skills and knowledge necessary to understand corporate and business finance, budgeting, planning, and financial forecasting.
5. Provide students with an understanding of the organization and culture of businesses and other organizations.

6. Provide students with an understanding of the technology used to develop, maintain, and manage information for decision-making purposes.
7. Provide students with experience in identifying problems, making effective decisions, and managing conflict.
8. Provide students with an understanding of professionalism and the ethical responsibilities of professional managers.
9. Understand the various HRM practices used in organizations, the legal issues associated with these practices, and the impact they have on the employment relationship.

## Course of Study

1. Core Requirements for All Business Majors (80 credit hours) See p.50  
— plus —
2. Required Management and Legal Studies courses (12 credit hours)
 

LS 424	Legal Aspects of Human Resource Management
MAN 204	Organizational Behavior
MAN 308	Employee Relations
MAN 323	Human Resource Management
— plus —	
3. Electives (30 credit hours)
 

BUS 480	Business Internship* (3 cr.)
— or —	
Business Elective (3 cr.)	
Business Electives (9 cr.)	
Non-Business Electives (18 cr.)/ includes ILP (3 cr.)	

Total credit hours required for graduation – 122.

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 College.

Courses to be included in computing the 2.0 minimum average in the major are as follows: All MAN and LS courses as well as BUS 450.

\* *The General Business major is encouraged to complete an internship in any of the areas represented by the School of Business.*

## Suggested Sequence of Courses

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- BUSR School of Business Requirement

### Freshman Year

*Fall Semester* Credit Hours

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3
MATH 111*	Analysis for Business and Economics I (GCR/BUSR)	
— or —		
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	
— or —		
CIS 102 *	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		16

### *Spring Semester*

ENGL 133**	English Composition II (GCR)	3
MATH 112**	Analysis for Business and Economics II (GCR/BUSR)	
— or —		
MATH 124**	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
		Non-Business Elective (BUSR)
		3
MAN 101*	Principles of Management (BUSR)	
— or —		
CIS 102 *	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
— or —		
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159**	Lifetime Activity Series (GCR)	1
		16

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

AC 201***	Financial Reporting (BUSR)	3
MK 200***	Principles of Marketing (BUSR)	3
CIS 202***	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR)	3
	Non-business Elective (BUSR)	3
		<u>15</u>

*Spring Semester*

AC 202**	Managerial Accounting (BUSR)	3
QM 201**	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 206**	Principles of Economics II (BUSR)	3
COMM 100**	Principles of Communication (BUSR)	3
		<u>15</u>

Non-credit career planning — Completion of individual development/career plan required for registration for junior year.

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

BUS 301	Integrated Business Operations (BUSR)	3
PH 211	Business Ethics (BUSR)	3
	Non-Business Elective (BUSR)	3
	Business Elective (MR)	3
Lab xxx	Natural Science Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

LS 301	Legal Aspects of Business (BUSR)	3
QM 310	Quality and Operations Management (BUSR)	3
CUL xxx	Cultural Perspective(GCR)	3
MAN 308	Employee Relations (MR)	3
Lab xxx/NSP	xxx Natural Science Perspective (GCR)	3
		<u>15</u>

**Senior Year**

Credit Hours

*Fall Semester*

LS 424	Legal Aspects of Human Resource Management (MR)	3
	Business Elective (MR)	3
	Business Elective (MR)	3
	Non-Business Elective (GCR)	3
	Non-Business Elective (BUSR)	3
		<u>15</u>

*Spring Semester*

BUS 450	Business Strategy (BUSR)	3
MAN 323	Human Resource Management (MR)	3
BUS 480	Business Internship (MR)	
	— or —	
	Business Elective (MR)	3
	Business Elective (MR)	3
	Non-Business Elective (BUSR)	3
		<u>15</u>

## **GENERAL BUSINESS – BBA ONLINE OPTION FOR ADULTS**

### **School 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.

The BBA is an accelerated program. Courses are delivered entirely over the Internet and are offered in a lock-step sequence, over approximately 20 eight-week terms. Students proceed taking one course per eight-week term.

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 College Bachelor of Business Administration provides the remaining 60 credit hours needed to qualify for a bachelor's degree.

In order to be considered for admission, students must transfer in at least 54 credit hours. Full-time Western New England College 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 program come from various departments in the School of Business as well as Arts and Sciences.

### **Program Objectives**

1. Prepare students to assume positions of increased responsibility in business, government, and industry.
2. Provide students with the knowledge, ethics, and skills necessary to understand and manage corporate goals, and to lead people to work together toward those goals.
3. Equip students with the skills necessary to be clear and effective communicators.
4. Provide students with the quantitative skills and knowledge necessary to understand corporate and business finance, budgeting, planning, and financial forecasting.
5. Provide students with an understanding of the organization and culture of businesses and organizations.
6. Equip students with an understanding of the technology used to develop, maintain, and manage information for decision-making purposes.
7. Provide students with experience in identifying problems, making effective decisions, and managing conflict.
8. Provide students with an enhanced understanding of professionalism and the ethical responsibilities of professional managers.

### **Course of Study**

For the BBA major it is assumed that students will transfer to Western New England College with an associate's degree or approximately 60 credits. Some students will need to complete specific lower level requirements. The following projected BBA sequence of courses assumes that a student has completed: six credit hours in English composition; three credit hours in mathematics; three credit hours in science; three credit hours in psychology or sociology; three credit hours in history; three credit hours in humanities; 12 credit hours in business courses (three credit hours each in lower level courses in computers, management, and marketing, and an upper level business law course); and approximately 27 credit hours in non-business and open electives.

**Core Requirements (72 credit hours)**

<b>Business Courses:</b>	36 Credits
CIS 102	Computer Tools for Business 3
MAN 101	Principles of Management 3
AC 201	Financial Reporting 3
MK 200	Principles of Marketing 3
CIS 202	Introduction to Information 3
AC 202	Managerial Accounting 3
FIN 214	Corporation Finance 3
QM 201	Introduction to Business Statistics 3
BUS 301	Integrated Business Operations 3
LS 301	Legal Aspects of Business 3
QM 310	Quality and Operations Management 3
BUS 450	Business Strategy 3
<b>Non-Business Courses:</b>	36 Credits
ENGL 132-133	English Comp. I & II 6
MATH xxx	College-level Math 3
MATH xxx	Business Math 3
	Non-Lab Science 3
EC 201-202	Principles of Economics I & II 6
PSY 101	Introduction to Psychology 3
	— or —
SO 101	Introduction to Sociology 3
HIST xxx	History Requirement 3
COMM 320	Professional Communication 3
PH 211	Business Ethics 3
	— plus —

**Required Management and Legal Studies**

<b>Courses:</b>	9 credit hours
LS 424	Legal Aspects of Human Resource Management
MAN 3xx	Management Elective
MAN 323	Human Resources Management
	— plus —

<b>Electives:</b>	39 credit hours
	Business Electives 12
	Non-Business Electives 24
	Open electives 3

Total Credit hours required for graduation—120.

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 College. Courses to be included in computing the 2.0 minimum average in the major are as follows: All MAN and LS courses as well as BUS 450.

**Proposed Sequence of Courses**

(may be modified based on students' academic qualifications and needs)

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GCR	General College Requirement
BUSR	School of Business Requirement

**Junior Year**

Credit Hours

<i>Year 1</i>	
COMM 320**	Professional Communication 3
	Business Elective <sup>1**</sup> (MR) 3
PH 211	Business Ethics (BUSR) 3
EC 201*	Principles of Economics I (BUSR) 3
EC 202**	Principles of Economics II (BUSR) 3
	Management Elective** (MR) 3

**Junior-Senior Year**

Credit Hours

<i>Year 2</i>	
CIS 202 ***	Introduction to Information Systems (BUSR) 3
MATH xxx*	Business Math (BUSR) 3
QM 201**	Introduction to Statistics (BUSR) 3
	Business Elective <sup>1**</sup> (MR) 3
AC 201***	Financial Reporting (BUSR) 3
AC 202**	Managerial Accounting (BUSR) 3

**Senior Year**

Credit Hours

<i>Year 3</i>	
LS 424	Legal Aspects of Human Resource Management 3
FIN 214**	Corporation Finance (BUSR) 3
BUS 301	Integrated Business Operations (BUSR) 3
MAN 323	Human Resource Management (MR) 3
QM 310	Quality and Operations Management (BUSR) 3
BUS 450	Business Strategy (BUSR) 3

**Senior Year**

Credit Hours

<i>Optional Year 4</i>	
	Business Elective** (MR) 3
	Business Elective** (MR) 3
	Or other course(s) as needed

<sup>1</sup>Other courses may be substituted based on students' needs.

## HISTORY MAJOR

### School 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 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, Marc Dawson, Theodore South

Associate Professor: John Seung-Ho Baick

Assistant 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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements, p. 45.

#### 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 490	Junior Seminar in History
HIST 492	Senior Seminar
	— 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, government, 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
- GCR General College Requirement
- A&SR School of Arts and Sciences Requirement

**Freshman Year**

*Fall Semester*

		Credit Hours
HIST 105	World Civilization I (GCR/MR)	3
HIST 111	US History to 1877	3
MATH 1xx*	Mathematics (GCR.)	3
ENGL 132*	English Composition I (GCR.)	3
LA 100	First Year Seminar (GCR.)	2
		14

*Spring Semester*

HIST 106	World Civilization II (MR)	3
HIST 112	US History 1878 to Present	3
MATH xxx	MATH 1xx ** Mathematics (MR)	3
GEN xxx	General Elective	3
ENGL 133**	English Composition II (GCR.)	3
PEHR 151	Personal Health and Wellness (GCR.)	1
		16

**Sophomore Year**

*Fall Semester*

		Credit Hours
POSC 102	American National Government	3
EC 101	Introduction to Economic Issues — or —	
EC 201	Principles of Economics I (A&SR)	3
LAB xxx	Natural (GCR)	3
CUL 2xx	Cultural Studies Perspective (GCR)	3
LIT xxx	Literature Requirement (A&SR)	3
PEHR 153-199	Life Activities Series (A&SR)	1
		16

*Spring Semester*

SO 101	Introduction to Sociology	3
CS 131	Computing for Arts and Sciences (GCR.)	3
PSY 101	Introduction to Psychology (A&SR)	3
LAB/NSP xxx	Natural Science Perspective (GCR)	3
HIST xxx	History Elective (MR)	3
		15

**Junior Year**

*Fall Semester*

		Credit Hours
PH xxx	Ethical Perspective (GCR.)	3
HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3

ARTS xxx	Aesthetic Perspective (GCR.)	3
GEOG 101	Introduction to Geography (A&SR)	3
		15

*Spring Semester*

HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
SBP xxx	Social Science Perspective (A&SR)	3
GEN xxx	General Elective	3
HIST 490	Junior Seminar in History (MR)	3
		15

**Senior Year**

*Fall Semester*

		Credit Hours
HIST 3xx	Upper Level History Elective (MR)	3
HIST 3xx	Upper Level History Elective (MR)	3
HUM xxx	Humanities Elective (A&SR)	3
GEN xxx	General Elective (GCR.)	3
GEN xxx	General Elective	3
		15

*Spring Semester*

HIST 3xx	History Elective (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GCR.)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
HIST 492**	Senior Seminar	4
		16

## **INDUSTRIAL ENGINEERING MAJOR**

### **School 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 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: Richard Grabiec, Eric Haffner

Associate Professors: Abdul Kamal, Thomas Keyser

Assistant Professor: William Brown

Professor Emeritus: J. Byron Nelson

The Department of Industrial Engineering'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 College 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 College, 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 and.
5. Enhance the overall reputation of the School of Engineering and Western New England College.
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.

## 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.
9. A recognition of the need for, and the ability to engage in life-long learning.
10. A knowledge of contemporary issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
12. An ability to design, develop, implement and improve integrated systems that include people, materials, information, equipment and energy.
13. An ability to design and improve a safe and productive work environment.
14. An ability to code and utilize programming languages and software relevant to industrial engineering.

## 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.

## Industrial Engineering Course of Study

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- ER Engineering Requirement



Total credit hours required for graduation — 132.

The 2.0 required 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.

## **INTEGRATED LIBERAL STUDIES MAJOR**

### **School 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 School 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 College.

### **Program Objectives**

1. To allow student 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 and School Requirements**

See Requirements on p. 42.

## **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.

## **INTERNATIONAL STUDIES MAJOR**

### **School 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 trans-national 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: Emmett C. Barcalow, Marc Dawson, Glen Ebisch, Martha Garabedian, Nancy J. Hoar, Shelly Regenbaum, Donald Williams, Vladimir Wozniuk

Associate Professor: John Seung-Ho Baick

Assistant Professors: Arthur Schiller Casimir, Meri Clark, Carlos Liard-Muriente, Catherine Plum

Instructor: Frances Abrams

## **Program Objectives**

1. To provide students with analytical tools necessary to understand and explain the increasingly complex inter-relationships 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.
3. To afford exposure to foreign cultures.
4. To underscore the importance of negotiation skills through participation in the Model U.N. program.
5. To stress critical reading skills.
6. To emphasize the construction and writing of coherent, logical arguments.
7. To acquire basic proficiency in a language other than one's own.

## **General and School Requirements**

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

**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 Introduction to Cultural Anthropology  
 INST 490 Seminar in International Studies  
 Plus one of the following:  
 COMM 205 Mass Communication  
 ENGL 215 World Literature II  
 Plus one of the following:  
 PH 308 Environmental Ethics  
 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.
- The capstone senior seminar in international studies 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.

**Suggested Sequence of Courses**

Notes:

- \* Is a prerequisite  
 \*\* Has a prerequisite  
 MR Major Requirement  
 GCR General College Requirement  
 A&SR School of Arts and Sciences Requirement

**Freshman Year**

Credit Hours

*Fall Semester*

INST 101*	Introduction to Contemporary Global Issues (MR)	3
MATH 1xx*	Mathematics (GCR)	3
ENGL 132*	English Composition I (GCR)	3
LANG xxx	First Semester Foreign Language (MR/A&SR)	3
LA 100	First Year Seminar (GCR)	2
PEHR 151*	Personal Health and Wellness(GCR)	1
		<hr/> 15

*Spring Semester*

HIST 106	World Civilization II (GCR/MR)	3
SO 205	Introduction to Cultural Anthropology (A&SR/MR)	3
ENGL 133**	English Composition II (GCR)	3
MATH 1xx**	Mathematics 1xx (GCR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
LANG xxx	Second Semester Foreign Language	3
		<hr/> 16

**Sophomore Year**

Credit Hours

*Fall Semester*

ENGL 215**	World Literature II (A&SR/MR)	3
EC 205*	Principles of Economics I (MR/A&SR)	3
LANG xxx	Third Semester Foreign Language (MR)	3
LAB xxx	Natural Science Perspective Requirement (GCR)	3
GEOG 101	World Geography (A&SR/MR)	3
		<hr/> 15

*Spring Semester*

PH 110*	Critical Thinking (A&SR)	3
LANG xxx	Fourth Semester Foreign Language (MR)	3
LAB/NSP xxx	Natural Science Perspective Requirement (GCR)	3
EC 206**	Principles of Economics II (MR)	3
POSC 203**	International Relations (MR)	3
		<hr/> 15

**Junior Year***Fall Semester*

Credit Hours

**European Area Concentration**

ENGL 310**	Modern Drama (MR)	3
EC 315**	Comparative Economic Systems (MR)	3
LANG xxx	Fifth Semester Foreign Language (MR)	3
CUL 2xx	Elements of Culture – Cultures Requirement (GCR)	3
CS 131	Computing for Arts and Sciences (GCR)	3
		<u>15</u>

**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	Elements of Culture – Requirement (GCR)	3
CS 131	Computing for Arts and Sciences (GCR)	3
		<u>15</u>

**Economics and Commerce Concentration**

EC 371	International Monetary Economics (MR)	3
MAN 311	Management of International Operations (MR)	3
PH 308	Environmental Ethics (MR)	3
	Fifth Semester Foreign Language (MR)	3
CUL 2xx	Cultural Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

	STUDY ABROAD	16-17
CS 131	Computing for Arts and Sciences (GCR)	3

**Senior Year****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 Perspective	3
PH 320	Western Religions	3
		<u>15</u>

**Developing Societies Concentration**

INST 480	Internship (MR)	3
HIST 361	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
		<u>15</u>

**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 308	Environmental Ethics	3
		<u>15</u>

*Spring Semester*

INST 490	Seminar In International Studies (MR)	3
HIST 3xx	History Elective	3
POSC 3xx	Government Elective	3
ARTS xxx	Aesthetic Perspective (GCR)	3
GEN xxx	General Elective	3
		<u>15</u>

## LIBERAL STUDIES MAJOR

### School 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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

#### 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
Laboratory Science	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.

Candidates for the Bachelor of Arts in Liberal Studies must meet all general requirements of the College and area requirements of the School of Arts and Sciences.

#### Course of Study (120 credit hours)

Computer	3 hours
Freshman English	6 hours
Humanities	30 hours
	(9 hours at 300-400 level)
Laboratory Science	6 hours
Mathematics	6 hours
Social Sciences	30 hours
	(9 hours at 300-400 level)
General Electives	39 hours
	(12 hours at 300-400 level)

Total credit hours required for graduation – 120.

## **MANAGEMENT MAJOR**

### **School of Business**

### **General Information**

#### **Vision:**

We are committed to developing in our students the knowledge, competencies, and character that will enable them to become difference makers—providing leadership in meeting organizational objectives and challenges.

#### **Mission:**

We offer a wide range of academic and experiential learning opportunities to develop in each of our students:

- The proactive, critical, and creative thinking skills needed for effective problem-solving
- The communication skills and the commitment to excellence and personal integrity to provide leadership in work and community settings.

### **Career Opportunities**

#### **Preparation For The Future:**

Upon the successful completion of the Management Program, the graduate will be prepared to embark on a career path with the promise of increasing responsibility in a rapidly changing global environment. Recognizing the importance of personal and group leadership, and effectively working cooperatively with others, the successful graduate will have acquired skills and competencies that prepare him or her to become a person who makes a difference, who adds value in pursuing an organization's mission, goals, and objectives.

#### **Careers For The Successful Graduate:**

Graduates of the Management Program are placed 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 P.Ferris, Peter W. Hess, Ned S. Schwartz, Harvey M. Shrage, Julie Siciliano

Associate Professors: Lynn Bowes-Sperry, Daniel Covell, Jeanie Forray, Sharianne Walker

### **Program Objectives**

1. Understand:
  - The key elements in the problem solving process
  - The strengths/weaknesses of the full range of organizational designs
  - The key elements of effective work design
  - Current practices in HRM
  - The legal issues associated with these practices
  - The impact these have on the employment relationship
2. Apply theories and concepts from the following areas to develop strategies for improving the performance of people and processes:
  - Motivation
  - Leadership
  - Conflict management
  - Change
  - Teamwork
3. Demonstrate skill and competency in:
  - Conflict Management
  - Negotiations
  - Developmental performance feedback
  - Team participation
  - Team leadership

**Course of Study**

1. Core Requirements for All Business Majors (80 credit hours) See p.50.  
— plus —

2. Required Management and Legal Studies courses (18 credit hours)
- LS 424 Legal Aspects of Human Resource Management
  - MAN 204 Organizational Behavior
  - MAN 308 Employee Relations
  - MAN 315 Organizational Theory
  - MAN 323 Human Resource Management
  - MAN 433 Performance Team Leadership
- plus —

3. Electives (24 credit hours)
- MAN 480 Management Internship (3 cr.)  
— or —
  - Business Elective (3 cr.)
  - Business Elective (3 cr.)
  - Non-Business Electives (18 cr.)/ includes ILP (3 cr.)

Total credit hours required for graduation – 122.

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 College.

Courses to be included in computing the 2.0 minimum average in the major are as follows: All MAN and LS courses as well as BUS 450.

**Suggested Sequence of Courses**

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- BUSR School of Business Requirement

**Freshman Year** Credit Hours

*Fall Semester*

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3

MATH 111*	Analysis for Business and Economics I (GCR/BUSR)	— or —
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	— or —
CIS 102 *	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		<u>16</u>

*Spring Semester*

ENGL 133**	English Composition II(GCR)	3
MATH 112**	Analysis for Business and Economics II (GCR/BUSR)	— or —
MATH 124**	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
	Non-Business Elective (BUSR)	3
MAN 101*	Principles of Management (BUSR)	— or —
CIS 102 *	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	— or —
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159**	Lifetime Activity Series (GCR)	1
		<u>16</u>

**Sophomore Year** Credit Hours

*Fall Semester*

AC 201* **	Financial Reporting (BUSR)	3
MK 200* **	Principles of Marketing (BUSR)	3
CIS 202* **	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR)	3
	Non-Business Elective (BUSR)	3
		<u>15</u>

*Spring Semester*

AC 202**	Managerial Accounting (BUSR)	3
QM 201**	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 202**	Principles of Economics II (BUSR)	3
COMM 100**	Principles of Communication (BUSR)	3
		<u>15</u>

Non-credit career planning — Completion of individual development/career plan required for registration for junior year.

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

BUS 301	Integrated Business Operations (BUSR)	3
PH 211	Business Ethics (BUSR) Non-Business Elective (BUSR)	3
MAN 204	Organizational Behavior	3
Lab xxx	Natural Science Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

LS 301	Legal Aspects of Business (BUSR)	3
QM 310	Quality and Operations Management (BUSR)	3
CUL xxx	Elements of Culture Requirement (GCR)	3
MAN 308	Employee Relations	3
Lab xxx	Natural Science Perspective (GCR)	3
		<u>15</u>

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

LS 424	Legal Aspects of Human Resource Management (MR)	3
MAN 315	Organizational Theory (MR) Business Elective (MR) Non-Business Elective (GCR) Non-Business Elective (BUSR)	3 3 3 3
		<u>15</u>

*Spring Semester*

BUS 450	Business Strategy (BUSR)	3
MAN 323	Human Resource Management (MR)	3
MAN 433	Performance Team Leadership (MR)	3
MAN 480	Management Internship (MR) — or — Business Elective (MR) Non-Business Elective (BUSR)	3 3 3
		<u>15</u>

**MARKETING MAJOR****School 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 contemplating the marketing major should be aware that the faculty seeks to achieve a balance of academic knowledge and practical accomplishment. For example, students receive many assignments designed to improve their understanding in the areas of personal communication, written communication, meeting deadlines, and problem-solving. Many of these assignments are performed in full view of their classmates and are subjectively evaluated and graded by the professors. Thus, the student must either have or develop the willingness to have their work scrutinized and constructively criticized by their peers and others. While professors use normally accepted teaching techniques such as lectures, videos, objective tests, etc., where appropriate, they also use less common techniques such as coaching and probing discussion in the classroom. Their primary focus is to have students learn and apply concepts to practical marketing situations and have students demonstrate their competence by the successful performance of specific assignments in a timely manner.

**Career Opportunities**

Many interesting and exciting job opportunities exist for marketing graduates including product/brand management, sales, advertising, sales promotion, public relations, customer service, direct marketing, marketing research, retailing, wholesaling, relationship marketing, and consulting.

## Faculty

Associate Professors: Paul Costanzo, Elizabeth Elam, Janelle Goodnight, Harlan Spotts

Professional Educator: James McKeon

## Program Objectives

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 (80 credit hours) See p.50.  
—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 and	Distribution Strategy
MK 421	Marketing Management
MK 440	Marketing Seminar
—plus—	
3. Other required courses (3 credit hours)
 

COMM 340	Business Communication
—plus—	
4. Electives (21 credit hours)
 

MK 3xx-4xx (3 cr.)	
MK 480	Marketing Internship (3 cr.)
— or —	
Business Elective (3 cr.)	
Non-Business Electives (15 cr.)	

Total credit hours required for graduation – 122.

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 College.

Courses to be included in computing the 2.0 minimum average in the major are all MK courses.

## Suggested Sequence of Courses

Notes:

- \* Is a prerequisite
- \*\* Has a prerequisite
- MR Major Requirement
- GCR General College Requirement
- BUSR School of Business Requirement

### Freshman Year

Credit Hours

#### Fall Semester

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3
MATH 111*	Analysis for Business and Economics I (GCR/BUSR)	
— or —		
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	
— or —		
CIS 102 *	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		<hr style="width: 100%; border: 0.5px solid black;"/>

#### Spring Semester

ENGL 133**	English Composition II (GCR.)	3
MATH 112**	Analysis for Business and Economics II (GCR/BUSR)	
— or —		
MATH 124**	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
		Non-Business Elective (BUSR)3
MAN 101*	Principles of Management (BUSR)	
— or —		
CIS 102 *	Computer Tools for Business (BUSR)	3

PSY 101	Introduction to Psychology (BUSR) — or —				
SO 101	Introduction to Sociology (BUSR)	3			
PEHR 153-159**	Lifetime Activity Series (GCR)	$\frac{1}{16}$			
<b>Sophomore Year</b>					
					Credit Hours
<i>Fall Semester</i>					
AC 201* **	Financial Reporting (BUSR)	3			
MK 200* **	Principles of Marketing (BUSR)	3			
CIS 202* **	Introduction to Information Systems (BUSR)	3			
EC 201*	Principles of Economics I (BUSR) Non-business Elective (BUSR)	$\frac{3}{15}$			
<i>Spring Semester</i>					
AC 202**	Managerial Accounting (BUSR)	3			
QM 201**	Introduction to Statistics (BUSR)	3			
FIN 214**	Introduction to Finance (BUSR)	3			
EC 202**	Principles of Economics II (BUSR)	3			
COMM 100**	Principles of Communication (BUSR)	$\frac{3}{15}$			

Non-credit career planning — Completion of individual development/career plan required for registration for junior year.

<b>Junior Year</b>					
					Credit Hours
<i>Fall Semester</i>					
BUS 301**	Integrated Business Operations (BUSR)	3			
PH 211**	Business Ethics(BUSR)	3			
COMM 340**	Business Communication (MR)	3			
MK 301**	Buyer Behavior (MR)	3			
Lab xx	Natural Science Perspective (GCR.)	$\frac{3}{15}$			
<i>Spring Semester</i>					
LS 301*	Legal Aspects of Business (BUSR)	3			
QM 310**	Quality and Operations Management (BUSR)	3			
CUL xxx	Cultural Perspective(GCR)	3			
MK 318**	Marketing Research (MR)	3			
Lab xx/NSP xx	Natural Science Perspective (GCR)	$\frac{3}{15}$			

<b>Senior Year</b>					
<i>Fall Semester</i>					
MK 317**	Promotional Strategy (MR) — or —				
MK 320**	Price and Product Strategy (MR) — or —				
MK 323**	Distribution Strategy (MR)	3			
MK 421**	Marketing Management (MR)	3			
MK 480**	Marketing Internship (MR) — or —				
	Business Elective (MR)	3			
	Non-Business Elective (GCR)	3			
	Non-Business Elective (BUSR)	$\frac{3}{15}$			
<i>Spring Semester</i>					
BUS 450**	Business Strategy (BUSR)	3			
MK 317**	Promotional Strategy (MR) — or —				
MK 320**	Price and Product Strategy (MR) — or —				
MK 323**	Distribution Strategy (MR)	3			
MK 440**	Marketing Seminar (MR)	3			
MK 3xx-4xx	Marketing Elective (MR) Non-Business Elective (BUSR)	$\frac{3}{15}$			

# MARKETING COMMUNICATION/ ADVERTISING MAJOR

School of Business

## General Information

New technology has enabled marketers to communicate in more effective ways. Such vehicles of 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 communication can be effectively used in executing and enhancing marketing strategies. The marketing communication/advertising major studies how marketers utilize and implement communication concepts when delivering the marketing message.

Students contemplating the marketing communication/advertising major should be aware that the faculty seeks to achieve a balance of academic knowledge and practical accomplishment. For example, students receive many assignments designed to improve their understanding in the areas of personal communication, written communication, meeting deadlines, and problem-solving. Many of these assignments are performed in full view of their classmates and are subjectively evaluated and graded by the professors. Thus, students must either have or develop the willingness to have their work scrutinized and constructively criticized by their peers and others. While professors use normally accepted teaching techniques such as lectures, videos, objective tests, etc., where appropriate, they also use less common techniques such as coaching and probing discussion in the classroom. Their primary focus is to have students learn and apply concepts to practical marketing communication/advertising situations and to have students demonstrate their competence by the successful performance of specific assignments in a timely manner.

## Career Opportunities

Many interesting and exciting job opportunities exist for marketing communication/advertising graduates including product/brand management, sales, advertising, sales promotion, public relations, direct marketing, retailing, relationship marketing, and consulting.

## Faculty

Associate Professors: Paul Costanzo, Elizabeth Elam, Janelle Goodnight, Harlan Spotts

Professional Educator: James McKeon

## Program Objectives

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 (80 credit hours) See p. 50.  
—plus—
2. Required Marketing courses (18 credit hours)

MK 301	Buyer Behavior
MK 317	Promotional Strategy
MK 340	Promotions Design and Application
MK 422	Campaign Planning and Management
MK 440	Marketing Seminar
MK 480	Marketing 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 —                            |
4. Electives (15 credit hours)
- |                        |         |
|------------------------|---------|
| MK 3xx-4xx             | (3 cr.) |
| Business Elective      | (3 cr.) |
| Non-Business Electives | (9 cr.) |

Note: COMM 205 is strongly recommended as a non-business elective.

Total credit hours required for graduation – 122.

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 College.

Courses to be included in computing the 2.0 minimum average in the major are as follows: All MK courses, COMM 340, COMM 348 and COMM 322.

## Suggested Sequence of Courses

Notes:

- |      |                                |
|------|--------------------------------|
| *    | Is a prerequisite              |
| **   | Has a prerequisite             |
| MR   | Major Requirement              |
| GCR  | General College Requirement    |
| BUSR | School of Business Requirement |

### Freshman Year Credit Hours

#### Fall Semester

BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3
MATH 111*	Analysis for Business and Economics I (GCR/BUSR)	
	— or —	
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	
	— or —	
CIS 102 *	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	1
		<u>16</u>

### Spring Semester

ENGL 133**	English Composition II (GCR)	3
MATH 112**	Analysis for Business and Economics II (GCR/BUSR)	3
	— or —	
MATH 124**	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	
	Non-Business Elective (BUSR)	3
MAN 101*	Principles of Management (BUSR)	
	— or —	
CIS 102 *	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	— or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159**	Lifetime Activity Series (GCR)	1
		<u>16</u>

### Sophomore Year Credit Hours

#### Fall Semester

AC 201* **	Financial Reporting (BUSR)	3
MK 200* **	Principles of Marketing (BUSR)	3
CIS 202* **	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR)	3
	Non-business Elective (BUSR)	3
		<u>15</u>

#### Spring Semester

AC 202**	Managerial Accounting (BUSR)	3
QM 201**	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 202**	Principles of Economics II (BUSR)	3
COMM 100**	Principles of Communication (BUSR)	3
		<u>15</u>

Non-credit career planning — Completion of individual development/career plan required for registration for junior year.

<b>Junior Year</b>		Credit Hours
<i>Fall Semester</i>		
BUS 301**	Integrated Business Operations (BUSR)	3
MK 317	Promotional Strategy	3
COMM 340**	Business Communication (MR)	3
MK 301**	Buyer Behavior (MR)	3
Lab xx	Natural Science Perspective (GCR)	3
		<hr/> 15

<i>Spring Semester</i>		
LS 301*	Legal Aspects of Business (BUSR)	3
QM 310**	Quality and Operations Management (BUSR)	3
CUL xxx	Cultural Perspective (GCR)	3
MK 340	Promotion Design and Application	3
Lab xx/NSP xx	Natural Science Perspective (GCR)	3
		<hr/> 15

<b>Senior Year</b>		Credit Hours
<i>Fall Semester</i>		
PH 211	Business Ethics	3
MK 422**	Campaign Planning and Management (MR)	3
	Business Elective (MR)	3
COMM 348**	Intercultural Communication (MR)	3
	Non-Business Elective (GCR)	3
		<hr/> 15

<i>Spring Semester</i>		
BUS 450**	Business Strategy (BUSR)	3
MK 3xx-4xx	Marketing Elective	3
MK 440**	Marketing Seminar (MR)	3
MK 480**	Marketing Internship (MR)	3
COMM 322**	Media Planning and Public Relations (MR)	3
		<hr/> 15

## MATHEMATICAL SCIENCES MAJOR

### School 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, linear and modern algebra, and real and complex analysis. It also introduces students to some of the current areas of importance in applied mathematics: differential equations, probability, statistics, numerical analysis, discrete mathematics, mathematical programming, and mathematical modeling.

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. Sufficient electives allow a student to add a concentration in actuarial science, econometrics, operations research, or statistics.

Leading to a Bachelor of Arts 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, 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, Ann Kizanis, Dennis Luciano, Richard Pelosi, Leh-Sheng Tang

Associate Professors: Mikhail Chkhenkeli, Lorna Hanes, Lisa Hansen, Jennifer Beineke, David Mazur

Assistant Professor: Enam Hoq

Professional Educators: David Daniels, John Willemain

Director of the Math Center: Josephine Rodriguez

## Program Objectives

The Mathematical Sciences program is structured and taught with a vision of the “ideal” mathematics graduate of the early 2000’s and beyond. Emphases are:

### 1. To learn mathematical ideas:

Become independent learners, capable of doing and learning mathematics on their own.

Develop their own processes, concepts, and techniques for solving problems.

Exercise mathematical reasoning through recognizing patterns, making and refining conjectures and definitions, and constructing logical arguments, both formal and heuristic, to justify results.

### 2. To connect mathematical ideas:

Develop an understanding of the interrelationships within mathematics and an appreciation of its unity.

Explore the connections that exist between mathematics and other disciplines.

Apply mathematics learned in one context to the solution of problems in other contexts.

### 3. To communicate mathematical ideas:

Develop skills in both written and oral communication of mathematical concepts and technical information.

Learn to communicate effectively at various levels of formality with people who have differing levels of mathematical insight.

Understand and appreciate the power of mathematical language and symbolism in the development of mathematical concepts.

### 4. To build mathematical models:

Work with a given model.

Recognize constraints inherent in a given model.

Construct models to analyze real-world settings and use symbols and reasoning in analysis.

Convert among representations (graphical, numerical, symbolic, and verbal) that reflect quantitative constraints in a given setting.

### 5. To use technology:

Use calculators and computers as tools to represent mathematical ideas and construct different representations of mathematical concepts.

Use calculators and computers to engender a broad array of mathematical modes of thinking through use of powerful computing tools (including function graphers, curve fitters, and symbolic manipulators).

Use calculators and computers to develop and use alternate strategies for solving problems.

## 6. To develop perspectives:

Experience exploration of the dynamic nature of mathematics and its increasingly significant role in social, cultural, and economic development.

Appreciate the contributions made by various cultures to the growth and development of mathematical ideas.

Investigate the contributions made by individuals, both male and female, and from a variety of cultures, in the development of ancient, modern, and current mathematical topics.

Gain an understanding of the historical development of major mathematical concepts.

## General and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

## Course of Study

### 1. Required mathematics and other courses (54 credit hours):

CS 181-182	Computer Science I-II
MATH 133-134	Calculus I & II
MATH 235	Calculus III
MATH 236	Differential Equations
MATH 261-262	Discrete Structures I & II
MATH 272	Probability
MATH 306	Linear Algebra
MATH 418	Introduction to Modern Algebra
MATH 420	Mathematical Modeling
MATH 421	Real Analysis
PH 204	Symbolic Logic
PHYS 133	Mechanics
PHYS 134	Electricity and Magnetism

### 2. Six additional credit hours in upper-level mathematics courses (MATH 300-400).

Students who have not completed secondary school physics may elect to enroll in PHYS 131-132 Elements of Mechanics I-II in lieu of PHYS 133.

The 2.0 required grade point average in the major is based upon all MATH 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
GCR	General College Requirement
A&SR	School of Arts and Sciences Requirement

### Freshman Year

		Credit Hours
<i>Fall Semester</i>		
CS 181*	Computer Science I (MR/GCR)	4
ENGL 132*	Composition I (GCR)	3
MATH 133*	Calculus I (GCR/MR)	4
LA 100	First Year Seminar (GCR)	2
HIST xxx	Historical Perspective (GCR)	3
PEHR 151	Personal Health and Wellness (GCR)	1
		<hr/> 17

### Spring Semester

CS 182**	Computer Science II (MR)	4
ENGL 133**	Composition II (GCR)	3
MATH 134*	**Calculus II (GCR/MR)	4
PH 204*	Symbolic Logic (A&SR/MR)	3
EC/POSC xxx	Behavioral Science Perspective (GCR)	3
		<hr/> 17

### Sophomore Year

		Credit Hours
<i>Fall Semester</i>		
MATH 235*	**Calculus III (MR)	3
MATH 261*	Discrete Structures I (MR)	3
PHYS 133*	Mechanics (GCR/MR)	4
ENGL xxx	Literature Requirement (A&SR)	3
PSY/SO xxx	Behavioral Science Perspective (A&SR)	3
		<hr/> 16

### Spring Semester

MATH 262**	Discrete Structures II (MR)	3
MATH 272*	**Probability (MR)	3
	— or —	
MATH 306**	Linear Algebra (MR)	
PHYS 134**	Electricity and Magnetism (GCR/MR)	4
PEHR 153-199	Lifetime Activities Series (GCR)	1
ARTS xxx	Aesthetic Perspective (GCR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GCR)	3
		<hr/> 17

<b>Junior Year</b>		Credit Hours
<i>Fall Semester</i>		
MATH 236*	**Differential Equations (MR)	3
MATH xxx	Mathematics Elective (MR)	3
CUL xxx	Cultural Studies Perspective (GCR)	3
GEN xxx	General Electives	3
PSY/SO/EC/POSC/HIST/CJ/ED (A&SR)		3
		<u>15</u>

<i>Spring Semester</i>		
MATH 421**	Real Analysis (MR) — or —	
MATH 418**	Modern Algebra (MR)	3
MATH 272*	**Probability (MR) — or —	
MATH 306**	Linear Algebra (MR)	3
GEN xxx	General Electives	6
PH xxx	Ethical Perspective (GCR)	3
		<u>15</u>

<b>Senior Year</b>		Credit Hours
<i>Fall Semester</i>		
GEN xxx	General Elective (GCR)	9
MATH xxx	Mathematics Electives (MR)(Upper Level)	6
		<u>15</u>

<i>Spring Semester</i>		
MATH 418**	Modern Algebra (MR) — or —	
MATH 421**	Real Analysis (MR)	3
MATH 420**	Mathematical Modeling (MR)	3
GEN xxx	General Electives	4
		<u>10</u>

MATH 272 must be taken in the second semester of either the sophomore or junior year.

## Actuarial Science

For students interested in a career in actuarial science, the mathematical sciences curriculum offers specific preparation for the initial examination required to become a Fellow of the Actuarial Society of America. The applicable courses are as follows:

MATH 133-134-235 Calculus I-II-III

MATH 272 Probability

## Teacher of Secondary School Mathematics

For students accepted into the secondary education program with a major in mathematics, it is strongly recommended that the following electives be taken:

MATH 371 Modern Aspects of Geometry

MATH 377 Elementary Number Theory

MATH 373 or ENGR 212 or MATH 120 Statistics

# **MECHANICAL ENGINEERING MAJOR**

**School of Engineering**

## **General Information**

Mechanical engineering is one of the broadest and most diverse of the engineering disciplines that affect 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, and consumer products. Mechanical engineers contribute on interdisciplinary teams to work in emerging areas such as advanced manufacturing processes, mechatronics, and nanotechnology. 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 and turbomachinery design. Mechanical design electives include courses in stress analysis and computer-aided design. The course work 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 the 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, 111 Market Place, Suite 1050, Baltimore MD, 21202-4012, (410) 347-7700.

## **Career Opportunities**

Mechanical engineers are broadly educated to work as designers of machines and devices that convert heat into other useful forms of energy. Mechanical engineers are employed in all types of industry and government. They work in research, product development, product design, manufacturing, consulting, and sales. Many of our graduates are employed at Allston Power, Hamilton Sundstrand, Pratt and Whitney, United Technologies Research Center, General Dynamics, Boeing, Lockheed-Martin, Otis, Carrier, Hasbro-Bradley, General Motors, Electric Boat, Andersen Consulting, General Electric, Smith and Wesson, American Saw, Northeast Utilities, Gerber Scientific Research, Spalding Sports Worldwide, Sikorsky, and Westinghouse. Mechanical engineering graduates have also become physicians and patent attorneys. Additionally, mechanical engineers occupy executive positions in many large corporations.

## **Manufacturing Concentration**

In your junior year, you 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 into 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.

## 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. Topics for a majority are supplied by industry. 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 selection of electives from engineering, mathematics, science, or business.

## Vision

The vision of the Department of Mechanical Engineering is to be nationally recognized in providing mechanical engineering education, leading to well qualified engineers who are inn innovative, immediate contributors to their profession and successful in advanced studies.

## Mission

The mission of the Department of Mechanical Engineering is to graduate engineers who are prepared 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 and national reputation.

## 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;
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;
5. A commitment to continuing education and engagement in lifelong learning, which keeps them abreast of contemporary issues and the state of the art in their disciplines;
6. Formulation of solutions that reflect concern for social, political, economic, and environmental constraints and consequences.

## Program Outcomes

Our graduates will possess:

- 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 economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d) an ability to function on multi-disciplinary teams

- e) an ability to identify, formulate, and solve engineering problems
- f) an understanding of professional and ethical responsibility 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 the ability to engage in life-long learning
- j) a knowledge of contemporary issues
- k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- l) a knowledge of materials and manufacturing processes
- m) an ability to use PC based data acquisition and control

## Faculty

Professors: Said Dini, Mohammad Khosrowjerdi, Carl Rathmann

Associate Professors: Bart Lipkens, Richard Mindek, Mary Vollaro

Assistant Professor: Glenn Vallee

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  
 GCR General College Requirement  
 ER Engineering Requirement

<b>Freshman Year</b>		Credit Hours
<i>Fall Semester</i>		
ENGL 132*	English Composition I (GCR/ER/MR)	3
ENGR 102*	First Year Engineering Seminar (GCR/ER/MR)	1
ENGR 103*	Introduction to Engineering (GCR/ER/MR)	4
MATH 133*	Calculus I (GCR/ER/MR)	4

PHYS 133*	Mechanics (GCR/ER/MR)	4
PEHR 151	Personal Health and Wellness (GCR)	1
		<hr/> 17

### *Spring Semester*

ENGL 133**	English Composition II (GCR/ER/MR)	3
ENGR 105*	Computer Program Design (GCR/ER/MR)	3
ENGR 110*	Engineering Problem Solving (GCR/ER/MR)	2
MATH 134***	Calculus II (GCR/ER/MR)	4
PHYS 134***	Electricity and Magnetism (GCR/ER/MR)	4
PEHR 153-199	Lifetime Activities Series (GCR)	1
		<hr/> 17

### **Sophomore Year**

Credit Hours

#### *Fall Semester*

CHEM 105*	General Chemistry I (ER/MR)	4
ENGR 208***	Foundations of Electrical Engineering (MR)	4
MATH 236***	Differential Equations (ER/MR)	3
ME 202 ***	Statics (MR)	3
		General Education Requirement (GCR/ER/MR)
		<hr/> 3
		17

#### *Spring Semester*

ENGR 212***	Probability and Statistics (ER/MR)	3
MATH 235***	Calculus III (ER/MR)	3
ME 203***	Dynamics (MR)	3
ME 205 ***	Measurement Computing (MR)	2
ME 208***	Mechanics of Materials (MR)	3
		General Education Requirement (GCR/ER/MR)
		<hr/> 3
LBC xxx	Learning Beyond the Classroom (GCR)	
		<hr/> 17

## Mechanical Concentration Course of Study

### **Junior Year**

Credit Hours

#### *Fall Semester*

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
		General Education Requirement (GCR/ER/MR)
		<hr/> 3
		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 <sup>2</sup> (MR)	3
	General Education Requirement (GCR/ER/MR)	3
		<u>17</u>

**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 86	Computer-Aided Engineering (MR)	3
	General Education Requirement (GCR/ER/MR)	3
		<u>15</u>

*Spring Semester*

IE 312**	Engineering Economic Analysis (MR)	3
ME 440**	Senior Design Projects (MR)	3
	General Elective (MR)	3
	Design Elective <sup>3</sup> (MR)	3
	Engineering Elective <sup>4</sup> (MR)	3
LBC xxx	Learning Beyond the Classroom (LBC)	
		<u>15</u>

<sup>1</sup> General Education courses must be selected in such a way to insure that all "perspectives of understanding" requirements have been satisfied. (See p. 43.)

<sup>2</sup> An engineering, math, or science course numbered 300 or above selected from a list published by the Mechanical Engineering Department and approved by the faculty advisor.

<sup>3</sup> A design elective is selected from a list published in each semester's course schedule.

<sup>4</sup> An engineering course numbered 300 or above approved by the faculty advisor.

<sup>5</sup> General Elective selected on approval of academic advisor.

Total credit hours required for graduation – 132.

The 2.0 required 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
GCR	General College 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
	General Education Requirement (GCR/ER/MR)	3
		<u>17</u>

*Spring Semester*

IE 312**	Engineering Economic Analysis (MR)	3
IE 314***	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
	General Education Requirement (GCR/ER/MR)	3
		<u>17</u>

**Senior Year**

		Credit Hours
<i>Fall Semester</i>		
IE 410***	Engineering Project Management (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
ME 449 **	Computer-Aided Engineering (MR)	3
		<u>15</u>

*Spring Semester*

ME 440**	Senior Design Projects <sup>3</sup> (MR)	3
	Manufacturing Design Elective <sup>2</sup> (MR)	3
	General Elective (MR)	3
	Engineering Elective <sup>4</sup> (MR)	3
	General Education Requirement <sup>1</sup> (GCR/ER/MR)	3
LBC xxx	Learning Beyond the Classroom (GCR)	
		<u>15</u>

1 General Education courses must be selected in such a way to insure that all “perspectives of understanding” requirements have been satisfied. (See p. 43.)

2 One design elective from the following list: IE 424 Computer Integrated Manufacturing, IE 334 Computer Simulation and Design.

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 326 Production Planning and Control, IE 410 Engineering Project Management, IE 422 Industrial Safety and Ergonomics, ME 320 Mechanical Vibrations.

Total credit hours required for graduation – 132.

The 2.0 required grade point average in the major is based on all ME and IE courses pursued in the student’s degree program.

## PHILOSOPHY MAJOR

### School 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? What happens to us after our bodies die? Do we have free will? What is the difference between knowing and believing? What is truth? 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? What is justice? Does it pay to be just?

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

## 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 in personal and family life, at work, and with democratic citizenship.
- To deepen students' understanding of and respect for different religious and ethical views and traditions.

- To encourage students to carefully evaluate 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.

## Course of Study

### Required Courses

PH 103	Introduction to Philosophy
PH 110	Critical Thinking
	— or —
PH 204	Symbolic Logic
PH 208	Ethics
PH 303	Social & Political Philosophy
PH 320	Western Religions
PH 321	Eastern Religions
PH 340	Ancient and Medieval Philosophy
PH 341	Modern and Contemporary Philosophy
	Plus two Philosophy courses at the 200 or 300 level
MATH 120	Introductory Statistics for A&S

## Suggested Sequence of Courses

Notes:

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

### Freshman Year

		Credit Hours
<i>Fall Semester</i>		
ENGL 132	English Composition I (GCR)	3
LA 100	First Year Seminar (GCR)	2
MATH 1xx	Mathematics (GCR)	3
PH 103	Introduction to Philosophy (MR)	3
CS 131	Computing for the Arts and Sciences (GCR)	3
PEHR 151	Personal Health and Wellness(GCR)	1
		<hr/> 15

*Spring Semester*

ENGL 133	English Composition II (GCR)	3
MATH 120	Introductory Statistics for the Arts & Sciences (MR)	3
PH 110	Critical Thinking (MR)	3
HIST xxx	Historical Perspective (GCR)	3
PEHR 153-199	Lifetime Activities Series (GCR)	1
GEN xxx	General Elective	3
		<hr/> 16

**Sophomore Year**

Credit Hours

*Fall Semester*

GEN xxx	General Electives	3
PH 208	Ethics (MR and GCR Ethical Perspective)	3
LAB xxx	Natural Science Perspective (GCR)	3
	Behavioral Science Perspective	3
CUL 2xx	Cultural Studies Perspective (GCR)	3
		<hr/> 15

*Spring Semester*

ENGL xxx	Literature Requirement (A&SR)	3
LAB xxx	Natural Science Perspective (GCR)	3
PH 303	Social & Political Philosophy (MR)	3
ARTS xxx	Aesthetic Perspective (GCR)	3
GEN xxx	General Electives	3
		<hr/> 15

**Junior Year**

Credit Hours

*Fall Semester*

PH 320	Western Religions (MR)	3
PH 3xx	Philosophy Elective Integrated Liberal & Professional Perspective (GCR)	3
GEN xxx	General Electives	6
		<hr/> 15

*Spring Semester*

PH 321	Eastern Religions (MR)	3
PH 3xx	Philosophy Elective	3
GEN xxx	General Electives	9
		<hr/> 15

**Senior Year**

Credit Hours

*Fall Semester*

PH 340	Ancient and Medieval Philosophy	3
GEN xxx	General Electives	12
		<hr/> 15

*Spring Semester*

PH 341	Modern and Contemporary Philosophy	3
PH 480	Internship (MR)	3
GEN xxx	General Electives	9
		<hr/> 15

**POLITICAL SCIENCE MAJOR  
(FORMERLY GOVERNMENT)****School 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: Donald Williams, Vladimir Wozniuk

Associate Professor: William Mandel

Assistant Professor: Peter Fairman

**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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

## Course of Study

1. 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 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
2. Twenty-one additional credit hours of political science including 15 additional credit hours of upper-level courses (POSC 300-400). The 25 upper-level credit hours must include three credit hours each of comparative government, international relations, and American government.
3. Eighteen credit hours in social sciences including at least three credit hours each of economics, geography, history, psychology, and sociology.
4. 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 government majors in their sophomore year and fulfill the major requirements without academic sacrifice.

Notes:

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

### Freshman Year

	Credit Hours
<i>Fall Semester</i>	
HIST xxx	History Requirement (GCR) 3
POSC 102*	American National Government (MR/A&SR) 3
MATH 1xx *	Mathematics Requirement (GCR) 3
ENGL 132*	English Composition I (GCR) 3
LA 100	First Year Seminar (GCR) 2
	14

### Spring Semester

POSC 101	Introduction to Contemporary Global Issues (MR) 3
SO 101	Introduction to Sociology (A&SR) 3
MATH 1xx**	Mathematics (GCR) 3
GEN xxx	General Elective 3
PEHR 151	Personal Health and Wellness (GCR) 1
ENGL 133**	English Composition II (GCR) 3
	16

### Sophomore Year

	Credit Hours
<i>Fall Semester</i>	
POSC 201**	Comparative Politics (MR) 3
POSC 203**	International Relations (MR) 3
EC 101	Introduction to Economic Issues — or —
EC 201	Principles of Economics I (A&SR) 3
LAB/NSP xxx	Natural Science Perspective (GCR) 3
PEHR 153-159	Lifetime Activities Series (GCR) 1
ARI xxx**	Literature Requirement (A&SR) 3
	16

*Spring Semester*

POSC 207**	Western Political Thought (MR)	3
CS 131	Computing for Arts and Sciences (GCR)	3
PSY 101	Introduction to Psychology (A&SR)	3
LAB xxx	Natural Science Perspective (GCR)	3
POSC 2-3xx**	Political Science Elective (MR)	3
GEN xxx	General Elective	1
		<hr/> 16

**Junior Year**

Credit Hours

*Fall Semester*

PH xxx	Ethical Perspective Requirement (GCR)	3
GEN xxx	General Elective	3
POSC 2-3xx**	Political Science Elective (MR)	3
ARTS xxx	Aesthetic Perspective (GCR)	3
GEOG 101	Introduction to Geography (A&SR/MR)	3
	— or —	
GEOG 110	Geography of the United States and Canada (A&SR/MR)	3
		<hr/> 15

*Spring Semester*

POSC 3xx**	Upper Level Political Science Elective (MR)	3
POSC 3xx**	Upper Level Political Science Elective (MR)	3
HUM xxx	Humanities Elective (A&SR)	3
SBP xxx	Social Science Elective (MR)	3
CUL 2xx	Elements of Culture – Cultures Requirement (GCR)	3
		<hr/> 15

**Senior Year**

Credit Hours

*Fall Semester*

POSC 3xx**	Upper Level Elective (MR)	3
POSC 3xx**	Upper Level Elective (MR)	3
GEN xxx	General Elective (GCR)	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 15

*Spring Semester*

POSC 490**	Seminar in Political Science (MR)	3
	Integrated Liberal and Professional Requirement	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
GEN xxx	General Elective	3
		<hr/> 15

**POLITICAL STUDIES MAJOR****School of Arts and Sciences****General Information**

An interdisciplinary program of study that enables those with an interest in government to broaden their learning through a systematic exploration of the historical underpinnings of politics. This interdisciplinary concentration will be certified by the state of Massachusetts, and is therefore recommended to those students seeking to obtain a secondary education teaching certificate with a concentration in social studies.

**Faculty**

Professors: John Anzalotti, Donald Williams, Vladimir Wozniuk

Associate Professors: John Seung-Ho Baick, William Mandel

Assistant Professors: Jonathan Beagle, Peter Fairman

**College-wide Requirements****19 credit hours**

ENGL I-II	English Composition I-II Requirement
HUM xxx	Cultures Course
CS 131	Computer Requirement
LA 100	Freshmen Seminar
PEHR xxx	Health and Physical Education Requirement
	Multiple Perspectives Requirement

**A/S Area I Requirement****12 credit hours**

LIT xxx	Literature Requirement
PH xxx	Philosophy Requirement
ARTS xxx	Elements of Culture in Arts
AR I	Area I Requirement

**A/S Area II Requirement****9 credit hours**

EC 101/205	Economics Requirement
PSY 101	Introduction to Psychology
SO 101	Introduction to Sociology

**A/S Science and Math****12 credit hours**

LAB xxx Natural Science Perspective

LAB/NSP xxx Natural Science Perspective

MATH xxx Math Requirement

MATH xxx Math Requirement

**Required Courses for Major****30 credit hours**

GEOG 101 World Geography

POSC 102 Introduction to American  
Government

POSC 203 International Relations

POSC 207 Western Political Thought

POSC 210 State Politics in America

HIST 105 World Civilization I

HIST 106 World Civilization II

HIST 111 U.S. History to 1877

HIST 112 U.S. History, 1877 to Present

EC xxx any additional course in  
Economics**Additional Required Hours of  
Government Courses****15 credit hours**

POSC 3xx American Politics

POSC 3xx Comparative Politics

POSC 3xx International Relations

POSC 3-4xx Upper-level Government

POSC 3-4xx Upper-level Government

General Electives

**Education Block****22 credit hours\***

PSY 304 Educational Psychology 3

ED 301 Principles and Problems of  
Education 3

ED 401 1

ED 403 Methods of Teaching 3

ED 409, 410 Practicum in Teaching 12

**Additional Electives****3 credit hours****Total Course Credit Hours: 122****PSYCHOLOGY MAJOR****School 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 to 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 a total of 18 credits in any combination of science courses, as well as two upper level research courses in Psychology. Students may also pursue teacher certification at the elementary or secondary level by participating in the Ed Block, or receive training in special education by participating in the New England Center for Children program (see p. 35).

**Career Opportunities**

Students are prepared to enter the world of work in counseling, personnel administration, human service agencies, special education, elementary, or secondary 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: Kathleen Dillon, Dennis Kolodziejski

Associate Professors: Christopher Hakala, Denine Northrup, Sheralee Tershner

Assistant Professors: Jessica Carlson, Dongxiao Qin

## 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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

Course of Study for B.A.

1. Required courses (24 credit hours):

PSY 101	Introduction to Psychology
PSY 201	Developmental Psychology
PSY 207	Statistics for the Social Sciences
PSY 309	Research Methods
PSY 312	Physiological Psychology
PSY 313	Learning
PSY 326	Abnormal Psychology
PSY 420	History of Psychology

2. Nine additional credit hours required in upper-level psychology (PSY 300-400) courses. Note that for the B.S. degree six of these credit hours may include the required upper level research courses in psychology.
3. Twelve additional credit hours in Social/Behavioral Perspective including three credit hours each of history, economics, government, and 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
GCR	General College Requirement
A&SR	School of Arts and Sciences Requirement

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

PSY 101*	Introduction to Psychology (MR)	3
ENGL 132*	Composition I (GCR)	3
LA 100	First Year Seminar (GCR)	2
HIST 111/112	Historical Perspective (GCR)	3
MATH xxx	Mathematics Requirement (GCR)	3
PEHR 151	Personal Health and Wellness I	1
		<u>15</u>

*Spring Semester*

PSY 201* **	Developmental Psychology (MR)	3
ENGL 133**	Composition II (GCR)	3
CS 131	Computing for the Arts and Sciences (GCR/MR)	3
POSC 102	American National Government (A&SR/MR)	3
MATH xxx	Mathematics Requirement (GCR)	3
PEHR 153-199	Lifetime Activities Series	1
		<u>16</u>

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

PSY 207* **	Statistics for the Social Sciences (MR)	3
PSY 313* **	Learning (MR)	3
PH xxx	Ethical Perspective (GCR)	3
EC xxx	Social Behavioral Perspective (A&SR/MR)	3
BIO 101	Basic Biology: Organisms — or —	
BIO 103	Life Sciences I (required of candidates for elementary education certification)	
	Laboratory Science Requirement (GCR)	3
		<u>15</u>

*Spring Semester*

PSY 309 * **	Research Methods (MR)	3
PSY 312 * **	Physiological Psychology <sup>1</sup> (MR)	3
ENGL xxx	Literature Requirement (A&SR)	3
GEN xxx	General Elective	3
LAB/NSP	Natural Science Perspective Requirement	3
		<u>15</u>

<sup>1</sup> Note that college BIO is a prerequisite for PSY 312 Physiological Psychology

**Junior Year<sup>2</sup>** Credit Hours*Fall Semester*

PSY 326	Abnormal Psychology (MR)	3
PSY 3xx/4xx	Psychology Required Elective(MR)	3
ARTS xxx	Aesthetic Perspective (GCR)	3
	Multicultural Perspectives <sup>3</sup> (MR)	3
	Integrated Liberal and Professional Perspective (GCR)	3
		<u>15</u>

<sup>2</sup> Students should consider enrolling in 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.

<sup>3</sup> Note that most courses in the African American Studies or Latin American Studies minors fulfill this requirement.

*Spring Semester*

PSY 420	History of Psychology (MR)	3
PSY 3xx/4xx	Psychology Required Elective (MR)	3
PSY 3xx/4xx	Psychology Required Elective (MR)	3
	Humanities Elective (A&SR)	3
CUL xxx	Cultural Perspectives (GCR)	3
GEN xxx	General Elective	1
		<u>16</u>

**Senior Year<sup>4</sup>** Credit Hours*Fall 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
		<u>15</u>

*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
		<u>15</u>

<sup>4</sup> Students intending to Study Abroad, or intending to become certified as teachers of behavioral science at the secondary level, or intending to be certified in elementary education, or intending to enroll in the New England Center for Children program, may need to take all of their major requirements 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 Ed Block, or participate in the NECC program. Ed Block students must also take PSY 304 and ED 301 prior to their senior year. In addition, these students should refer to the elementary and secondary education program requirements that list the necessary prerequisites for the Ed Block including the specific math, history, government and other requirements necessary for teacher certification in Massachusetts.

## **SOCIAL WORK MAJOR**

### **School 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 helping society to create policies and programs more responsive to human need; to developing mutually beneficial relationships between people and their environments; and to empowering people to recognize and mobilize their strengths.

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 College 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.

#### **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 health care, 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**

Professor: Sara Weinberger

Chair and Associate Professor: Jeff Schrenzel

Instructor: Paula Nieman

#### **Program goals**

1. To acquire the knowledge, values, and skills to engage in entry level generalist social work practice in a variety of settings with diverse populations using micro, mezzo, and macro levels of intervention.
2. To possess the knowledge, values, skills, self-awareness, maturity, and academic competencies needed to engage and succeed in graduate social work education.
3. To have a respect for and appreciation of human diversity within a pluralistic society.
4. To respect and appreciate the value and dignity of all people and to use approaches that enhance client self-worth and dignity.

5. To incorporate both personally and professionally the promotion of social justice by advocating for the rights of all human beings and working to change systems that contribute to people's oppression.
6. To possess competent verbal and written communication skills that enable effective communication in multi-cultural and multi-disciplinary environments.
7. To be able to engage in all elements of the problem-solving process in social work practice from a bio-psycho-social perspective and in partnership with clients.
8. To bring a spirit of scientific inquiry to social work practice, recognizing the dual role of the social worker as practitioner and researcher.
9. To engage in professional decision-making from a knowledge base incorporating social work values and ethics.
10. To commit to career-long professional growth and development through affiliation with professional groups, professional continuing education, and other forms of ongoing professional development.

## General and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

## 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.)
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, a letter of reference, and a degree audit form.

### 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.

## Required Courses

SW 100	Introduction to Social Work
SW 216	Human Behavior and the Social Environment
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 304	Social Work Interventive Methods IV (Social Work Practice with Families and Groups)
SW 305	The Helping Relationship
SW 313	Social Welfare and Social Policy
SW 314	Field Instruction in Macro Practice
SW 319	Social Work Research
SW 320	The Dynamics of Oppression and Empowerment
SW 409-412	Field Instruction in Social Work I-IV
SW 414	Field Instruction Seminar I
SW 415	Field Instruction Seminar II
POSC 102	American National Government (counts as college Social and Behavioral Perspective)
SO 101	Introduction to Sociology (counts as college Social and Behavioral Perspective)
SO 211	Sociology of Minority Groups
PSY 101	Introduction to Psychology (counts as college 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 (counts as college Natural Science Perspective)
NSP	(counts as college Natural Science Perspective)
MATH 120	Math Statistics (counts as one of two required math courses)
PH 210	Ethics for Social Work (counts as college Ethical Perspective)
ENGL 336	Ethnic American Literature or a literature course about an oppressed group approved by BSW Department Chair (counts as college literature requirement)
SPAN 140	Spanish for Social Services

*Note: Requirements for the major can satisfy the student's perspectives of understanding requirements.*

Total credit hours required for graduation – 122.

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

#	Must be taken in sequence
*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GCR	General College Requirement
A&SR	School of Arts and Sciences Requirement

<b>Freshman Year</b>		Credit Hours
<i>Fall Semester</i>		
LA 100	First Year Seminar (GCR)	2
LA 101	Freshman Field Experience (MR)	1
MATH 115	Contemporary Mathematics I (GCR)	3
ENGL 132*	English Composition I (GCR)	3
SW 100*	Introduction to Social Work (GCR/MR)	3
PSY 101*	Introduction to Psychology (A&SR/GCR/MR)	3
PEHR 151*	Personal Health and Wellness	1
		<hr/> 16

<i>Spring Semester</i>		
ENGL 133**	English Composition II (GCR)	3
POSC 102*	American National Government (A&SR/MR)	3
CS 131	Computing for the Arts and Sciences (GCR)	3
SO 101	Introduction to Sociology (A&SR/MR)	3
PEHR 153-199**	Lifetime Activities Series (GCR)	1
HIST xxx	Historical Perspective (GCR)	3
		<hr/> 16

<b>Sophomore Year</b>		Credit Hours
<i>Fall Semester</i>		
SW 216* **	Human Behavior and the Social Environment (MR)	3
MATH 120	Introductory Statistics for the Arts and Sciences (GCR/MR)	3
PSY 201	Developmental Psychology (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GCR)	3
BIO 101	Introduction to Biology (GCR/MR)	3
		<hr/> 15

<i>Spring Semester</i>		
PH 210	Ethics for Social Workers (A&SR/GCR/MR)	3
EC 106*	The Economics of Poverty and Discrimination (MR)	3
ARTS xxx	Aesthetic Perspective (GCR)	3
SPAN 140	Spanish for Social Services (MR)	3
NSP	Natural Science Perspective (GCR/MR)	3
		<hr/> 15

<b>Junior Year</b>		Credit Hours
<i>Fall Semester</i>		
SW 301#* **	Social Work Interventive Methods I (MR)	4
SW 319**	Social Work Research (MR)	3
SO 211#*	Sociology of Minority Groups(MR)	3
GEN xxx	General Elective	3
CUL 2xx	Cultural Studies Perspective (GCR)	3
		<hr/> 16

<i>Spring Semester</i>		
SW 302#**	Social Work Interventive Methods II (MR)	3
SW 313#**	Social Welfare and Social Policy (MR)	3
SW 320#**	Dynamics of Oppression and Empowerment (MR)	3

SW 303#**	Social Work Interventive Methods III (MR)	3
SW 314**	Field Instruction in Macro Practice (MR)	3
SW 305#**	The Helping Relationship (MR)	2
		<u>17</u>

**Senior Year**

Credit Hours

*Fall Semester*

SW 304#**	Social Work Interventive Methods IV (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)	2
GEN xxx	General Elective	3
		<u>14</u>

*Spring Semester*

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)	1
ENGL 336	Ethnic American Literature (A&SR/MR)	3
		<u>13</u>

**SOCIOLOGY MAJOR****School 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**

Professor: Richard Luxton

Associate Professor: Raymond Zucco

Assistant Professor: Michaela Simpson

**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 and School Requirements

See General College Requirements on p. 42 and School of Arts and Sciences Requirements on p. 45.

## Course of Study

1. 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 21 Century
SO 322	Sociological Theory and Methods
SO 412	Seminar in Theory and Methods
SO 324	Comparative and Historical Sociology

Fifteen additional credit hours with at least two selected from upper-level course 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.

3. 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
GCR	General College Requirement
A&SR	School of Arts and Sciences Requirement

### Freshman Year

Credit Hours

#### Fall Semester

SO 101*	Introduction to Sociology (MR)	3
ENGL 132*	Composition I (GCR)	3
HIST xxx	History Requirement (GCR/MR)	3
CS 131	Computing for the Arts and Sciences (GCR)	3
LA 100	First Year Seminar (GCR)	2
MATH 115*	Contemporary Mathematics (GCR)	3
		17

#### Spring Semester

ARTS xxx	Elements of Culture —Arts Requirement (A&SR)	3
PH xxx	Ethical Perspective (A&SR)	3
ENGL 133**	English Composition II (GCR)	3
PSY xxx	Behavioral Science Perspective (A&SR/MR)	3
MATH 117**	Mathematical Reasoning	3
PEHR 151	Personal Health and Wellness (GCR)	1
		16

### Sophomore Year

Credit Hours

#### Fall Semester

SO 203	Social Problems	3
EC xxx	Behavioral Science Perspective (A&SR/MR)	3
CUL 2xx**	Elements of Culture — Cultures Requirement (GCR)	3
PEHR 155-199	Lifetime Activities Series (GCR)	1
ENGL xxx	Literature Requirement (A&SR)	3
LAB xxx	Laboratory Science Requirement (GCR)	3
		16

*Spring Semester*

SO 310	Cultural Anthropology in the 21st Century (MR)	3
PSY 207*	Statistics for the Social Services (MR)	3
ENGL xxx	Literature Requirement (A&SR)	3
POSC xxx	Government Requirement (A&SR/MR)	3
LAB xxx	Laboratory Science Requirement (GCR)	3
		<u>15</u>

**Junior Year**

Credit Hours

*Fall Semester*

SO 211**	Sociology of Minority Groups (MR)	3
SO 324**	Comparative and Historical Sociology (A&SR)	3
GEN xxx	General Elective	8-9
		<u>14-15</u>

*Spring Semester*

SO 322	Sociological Theory and Method 1 (MR)	3
SO 3xx-4xx	Sociology Elective (MR)	3
GEN xxx	General Electives	8-9
		<u>14-15</u>

**Senior Year**

Credit Hours

*Fall Semester*

SO 412**	Seminar in Theory and Methods (MR)	3
SO 410**	Social Change (MR)	3
GEN 3xx-4xx	General Electives (MR)	9
		<u>15</u>

*Spring Semester*

SO 341**	The Sociology of Work (MR)	3
SO 413**	Social Inequality and Justice (MR)	3
ILP xxx	Integrated Liberal and Professional Perspective (GCR)	3
GEN 3xx-4xx	General Electives (MR)	6
		<u>15</u>

*Note: Students must take PSY 207 prior to their senior year and must take SO 322 Sociological Theory and Methods in the spring of their junior year.*

**SPORT MANAGEMENT MAJOR****School of Business****General Information**

The sport management program emphasized 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 sports 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 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 sports, sport facility management, collegiate sports, recreation, sports clubs, sports journalism, sport marketing, health and fitness clubs, and the sporting goods industry.

**Faculty**

Professors: William Ferris, Peter Hess, Ned Schwartz, Harvey Shrage, Julie Siciliano

Associate Professors: Lynn Bowes-Sperry, Daniel Covell, Jeanie Forray, Sharienne Walker

**Program Objectives**

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.
9. Develop the ability to apply theoretical concepts of sport management in a practical setting through supervised field experience.

## General and School Requirements

See General College Requirements on p. 42 and School of Business Requirements, p. 45.

## 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/Practicum 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.

Practicum 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 College athletic department staff. The course combines classroom instruction with on-site practicum experience.

Sport management majors who meet the College'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 (MAN 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.

## Electives

Electives supplement the sport management student's business program. Sports journalism, sport psychology, performance team leadership and principles of coaching, for example, may be selected from the list of courses approved by the School of Business. Special care is given to ensure that the elective selections complement the sport management student's course of study leading to a successful career in sport-related organizations.

## Course of Study

1. Core Requirements for All Business Majors (80 credit hours) See p. 50.  
—plus—
2. Required Management, Marketing and Legal Studies Courses (18 credit hours)  
MAN 250      Structure of Sport Industry  
MAN 323      Human Resource Management

MAN 355	Sport Facility Planning and Management (3 cr.)
LS 360	Legal Studies for Sport Management
MAN 366	Sport Marketing (3 cr.)
LS 424	Legal Studies for Human Resource Management (3 cr.)
MAN 465	Seminar in Sport Management (3 cr.) —plus—
3. Other required courses (6 credit hours)	
EC 340	The Economics of Sports
CL 390	Sports in Society* —plus—
4. Electives (18 credit hours)	
MAN 480	Internship (3 cr.) — or —
	Business Elective (3 cr.)
	Business Elective (3 cr.)
	Non-Business Electives (12 cr.)

\*Course requirement filled with approved School of Arts and Sciences sport-related course offering, such as Sports Psychology, Principles of Coaching, Sport History or Sports Journalism, for example.

Total credit hours required for graduation – 122.

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 College.

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

All MAN and LS courses MAN 366, EC 340, CL 390 and BUS 450.

## Suggested Sequence of Courses

Notes:

*	Is a prerequisite
**	Has a prerequisite
MR	Major Requirement
GCR	General College Requirement
BUSR	School of Business Requirement

<b>Freshman Year</b>		Credit Hours
<i>Fall Semester</i>		
BUS 101	First Year Seminar (GCR/BUSR)	3
ENGL 132*	English Composition I (GCR)	3
MATH 111*	Analysis for Business and Economics I (GCR/BUSR)	3
	— or —	
MATH 123*	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	
HIST xxx	Historical Perspective (GCR)	3
MAN 101	Principles of Management (BUSR)	
	— or —	
CIS 102 *	Computer Tools for Business (BUSR)	3
PEHR 151*	Personal Health and Wellness (GCR)	$\frac{1}{16}$
<i>Spring Semester</i>		
ENGL 133**	English Composition II (GCR)	3
MATH 112**	Analysis for Business and Economics II (GCR/BUSR)	
	— or —	
MATH 124**	Calculus I for Management, Life and Social Sciences (GCR/BUSR)	3
	Non-Business Elective (BUSR)	3
MAN 101*	Principles of Management (BUSR)	
	— or —	
CIS 102 *	Computer Tools for Business (BUSR)	3
PSY 101	Introduction to Psychology (BUSR)	
	— or —	
SO 101	Introduction to Sociology (BUSR)	3
PEHR 153-159**	Lifetime Activity Series (GCR)	$\frac{1}{16}$
<b>Sophomore Year</b>		Credit Hours
<i>Fall Semester</i>		
AC 201* **	Financial Reporting (BUSR)	3
MK 200* **	Principles of Marketing (BUSR)	3
CIS 202* **	Introduction to Information Systems (BUSR)	3
EC 201*	Principles of Economics I (BUSR)	3
MAN 250	Structure of Sport Industry (MR)	3
		$\frac{1}{15}$

*Spring Semester*

AC 202**	Managerial Accounting (BUSR)	3
QM 201**	Introduction to Statistics (BUSR)	3
FIN 214**	Introduction to Finance (BUSR)	3
EC 202**	Principles of Economics II (BUSR)	3
COMM 100**	Principles of Communication (BUSR)	3
		<u>15</u>

Non-credit career planning – Completion of individual development/career plan required for registration for Junior year.

**Junior Year**

Credit Hours

*Fall Semester*

BUS 301	Integrated Business Operations (BUSR)	3
PH 211	Business Ethics(BUSR)	3
EC 340	The Economics of Sports (MR)	3
MAN 355	Sport Facility Planning and Management (MR)	3
Lab xxx	Natural Science Perspective (GCR)	3
		<u>15</u>

*Spring Semester*

LS 360	Legal Studies for Sport Management (MR)	3
QM 310	Quality and Operations Management (BUSR)	3
CUL xxx	Cultural Perspective (GCR)	3
MAN 366	Sport Marketing (MR)	3
MAN 323	Human Resource Management	3
		<u>15</u>

**Senior Year**

Credit Hours

*Fall Semester*

LS 424	Legal Studies for Human Resource Management	3
Lab xxx/NSP	xxx Natural Science Perspective (GCR)	3
Bus Elective	Business Elective — or —	3
MAN 480	Internship	
CL 390	Sports in Society	3
NBEL	Non business Elective (GCR)	3
		<u>15</u>

*Spring Semester*

BUS 450	Business Strategy (BUSR)	3
MAN 465	Seminar in Sport Management (MR)	3
Bus Elective	Business Elective (MR)	3
NBEL	Non-business Elective (BUSR)	3
NBEL	Non-business Elective (BUSR)	3
		<u>15</u>



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## 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 School of Business for the following minors — business and management studies — and the office of the dean of the School of Arts and Sciences for all others.

When students elect a minor, they should inform their dean. The requirements in effect at that time are those that should be fulfilled. If a student wishes to fulfill requirements of an earlier date (for example, of the catalogue he or she entered under), the agreement of the department chair must be obtained.

The minors are described below.

#### African American Studies Minor

The minor requirement is 18 credit hours, as follows:

EC 106	Economics of Poverty and Discrimination — or —
EC 316	American Economic History
ENGL 223	African American Literature I
ENGL 318	African American Literature II
HIST 3xx	African American History*
SO 216	American Culture and the Black Experience

*\*If HIST 3xx African American History is not offered in the time that a student is at Western New England College that student may take HIST 354 Civil War and Reconstruction instead.*

And one course 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 310	Comparative Race Relations: U.S. and South Africa
HIST 326	Sugar, Slaves, and Cloth: The Rise of Atlantic Society, 1500-1900

HIST 354	Civil War and Reconstruction
HIST 360	History of Precolonial Africa

#### 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 210	Vertebrate Physiology
BIO 220	Vertebrate Physiology Laboratory
BIO 213	Ecology

#### Business Minor

The minor requirement is 18 credit hours, as follows:

AC 201	Financial Reporting
AC 202	Managerial Accounting
CIS 202	Introduction to Information Systems
FIN 214	Introduction to Finance
MAN 101	Principles of Management
MK 200	Principles of Marketing

The business minor is not available to students whose major is within the School 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 II*
	— or —
CHEM 317-318	Physical Chemistry I-II
	— and —
CHEM 327-328	Physical Chemistry Laboratory III*

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 320	Professional Communication
COMM 340	Business Communication

— or —

ENGL 344 Expository Writing

Plus two of the following:

JRNL 218	Introduction to Journalism I
COMM 205	Mass Communication
COMM 301	Persuasion and Debate
COMM 321	Nonverbal Communication
COMM 326	Race, Gender and Ethnicity in the Media
COMM 340	Business Communication
COMM 348	Intercultural Communication
ENGL 310	Communication in Language

## Computer Science Minor

The minor requirement is 20 credit hours, as follows:

CS 181	Computer Science I
CS 182	Computer Science II
CS 283	Data Structures I
CS 284	Data Structures II
MATH 261	Discrete Structures I

Plus one 300 to 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
CJ 211	Corrections
CJ 218	Police and Society
CJ 230	Criminal Law
CJ 232	Criminal 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 201	Principles of Economics I
EC 202	Principles of Economics II
EC 305	Macroeconomics
EC 306	Microeconomics

Plus six additional credits at 300 level or higher

## Education Minor

The minor requirement is 18 credit hours, as follows.

PSY 101	Introduction to Psychology
PSY 211	Developmental Psychology
PSY 304	Educational Psychology
PSY 317	Psychology of the Exceptional Person

Plus any of the two following education or psychology courses:

ED 301	Principles and Problems of Education
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

## 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.

## Entrepreneurship Minor

The minor requirement is 18 credits hours, as follows:

Required Courses (9 credits):

AC 201	Financial Reporting
MK 200	Principles of Marketing
BUS XXX	Entrepreneurship and Innovation

Elective Courses (9 credits):

BUS XXX	Venture Feasibility
BUS XXX	Mind Your Own Business - Practicum
BUS XXX	Marketing for Entrepreneurs
BUS XXX	Financing Entrepreneurial Ventures

## Fine Arts Minor

The minor requirement is 18 credit hours consisting of any ART, FILM, MUS, or THTR courses.

## 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.

## International Business Minor

The International Business Minor is an interdisciplinary program designed to assist students in developing appropriate skills and knowledge for entry into careers related to International Business.

The minor requires completion of 15 credit hours, as follows:

MK 411	Multinational Marketing
FIN 322	International Finance
MAN 311	International Management

The remaining 6 credits may be chosen from the following:

BUS 310/311	International Practicum
EC 371	International Monetary Economics
EC 372	International Trade
POSC 203	International Relations
POSC 340	International Law & Organizations

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, one of which must be in the Department of Economics.

## Latin American Studies Minor

The minor requirement is 18 credit hours, as follows:

SPAN 101 and SPAN 102	
— or —	
SPAN 203 and SPAN 204	
CUL 250	Latin American Civilization
ENGL 253	Love, Death, and Power in Twentieth Century Spanish American Literature

- HIST 326 Sugar, Slaves, and Cloth  
 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 Program Minor

The minor requires the following:

### Required courses (12 credit hours):

- MAN 101 Principles of Management  
 MAN 204 Organizational Behavior  
 MAN 315 Organizational Theory  
 BUS 450 Business Strategy

### Elective Courses (six credit hours):

- MAN 3xx-4xx Management Elective  
 MAN 3xx-4xx Management Elective

The management program minor is for School of Business students only who are not majoring in management or sport management.

## Mathematics 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 261 Discrete Structures I

Three additional courses numbered 262 or above, 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 205 Mass Communication  
 JRNL 210 Journalism I  
 COMM 251 Television Broadcasting I  
 COMM 250 Television Production

And two courses from the following:

- JRNL 310 Journalism II  
 One course in radio  
 COMM 322 Media Planning and Public Relations  
 COMM 352 TV Broadcasting II

## Music Minor

21 credit hours

- MUS 101 Music Appreciation  
 MUS 201 Basic Music Theory

Six semester hours in performance selected from:

- MUS 151/152 Campus Chorus  
 MUS 161/162 Pep Band  
 MUS 171/172 Jazz Ensemble  
 MUS 181/182 Concert Band  
 MUS 110 Beginning Guitar  
 MUS 210 Intermediate Guitar

Plus nine semester hours of music at the 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

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 207	Principles of Quantitative Economics
EC 305	Macroeconomics
EC 306	Microeconomics — or —
ILP 317	Management Issues for Professionals
EC 490	Seminar: Issues in Contemporary Economics

One other EC course at the 300 level

## Social Work Minor

The minor requirement is a minimum of 18 credit hours, as follows:

SW 100	Introduction to Social Work
SW 216	Human Behavior and the Social Environment
SW 301	Social Work Interventive Methods I (4 credits)
SW 320	The Dynamics of Oppression and Empowerment*

Plus two additional courses in social work.

\*Prerequisites for this course are SO 101 and SO 211, as well as junior standing. Social Work Minor for Criminal Justice Majors

The minor requires the following courses:

SW 101	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 (4 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 and SO 211, as well as junior standing.

\*\*SW 305 The Helping Relationship (2credits) 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 (twelve 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 —

- ENGL 253 Love, Death, and Power in Twentieth Century Spanish American Literature
- and —

- CUL 250 Latin American Civilization
- or —

- SPAN 101 Elementary Spanish I
- or —

- SPAN 130 Spanish for Criminal Justice
- or —

- SPAN 140 Spanish for Social Services

- SPAN 102 Elementary Spanish II

## Theater 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
- ART 39x Women and the Arts
- 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 PROGRAMS

### 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 College 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 College 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

## **Certificate Program in Computer Information Systems**

Students have an opportunity to undertake a traditional major plus a professional program focusing on information systems.

In this program the graduate has the depth of preparation in a major that permits further education plus a career-oriented concentration in information systems that can lead to useful employment. This program may be completed in the normal 122-hour degree plan. Students interested in this program should consult the dean of the School of Business.

In addition to serving traditional undergraduate students, this program is intended for students who have at least an associate's degree or advanced undergraduate training, but who want to retrain for a new career or who need familiarity with computing to advance in their present jobs. The certificate program consists of six courses (19 credit hours) as specified below. No prior experience is needed.

CIS 102	Computer Tools for Business
CIS 202	Introduction to Information Systems
CIS 210	Foundations of Web Technologies
CIS 300	Object-Oriented Programming
CIS 321	Database Management Systems
CIS 413	Data Communications Systems and Networks
	— or —
CIS 417	Systems Analysis and Design

Requirements for admission are the completion of 60 credit hours with a grade point average of at least 2.0 from an accredited two-year or four-year college or university. Western New England College students thus cannot be admitted to the program until their junior year. However, they may take courses that count toward the certificate in prior years. Students majoring in computer information systems, computer science, and computer engineering are not eligible for the certificate program. Only courses completed within three and one-half years of completion of the program may be counted toward the certificate. At most two courses may be transferred into the program and those must be the equivalent of CIS 102 and/or CIS 202 only. No transfer credit will be granted for any other course towards this certificate.



## 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 school listed in parentheses.

### AC ACCOUNTING (School of Business)

#### AC 201 Financial Reporting

Prerequisite: MATH 115, 111, or 123. 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.

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.

3 cr.

#### AC 305 Financial Reporting II

Prerequisite: AC 201, and CIS 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.

3 cr.

#### AC 306 Financial Reporting III

Prerequisite: AC 305. This is the second 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.

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, and variable product costing.

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.

3 cr.

#### AC 333 Independent Study in Accounting

See "Independent Study" on p. 33.

1-3 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.

1-3 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 inter-corporate investments, business combinations, consolidated financial statements, intercompany transfers of assets, foreign currency transactions, and translation of foreign entity financial statements.

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.

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.

3 cr.

#### **AC 480-481 Internship in Accounting**

See “internships” on p. 35.

3 cr.

## **ART**

### **(School of Arts and Sciences)**

(All ART courses satisfy Aesthetic Perspective requirement)

#### **ART 101 Art Appreciation**

This course is an introductory study of selected examples from the arts of painting, sculpture, and architecture in various cultures—primitive, Western and Oriental, ancient, and modern. Special attention is given to the purposes and functions of art for the individual and for society and to ways of understanding artistic creativity.

3 cr.

#### **ART 105 Elementary Drawing: Line, Design, Color**

This course is an introduction to the use of pencil, charcoal, Conte crayon, and pastels. Projects include work in perspective, still life, figure drawing, and portraiture. Offered every semester.

3 cr. Art supply fee \$25.

#### **ART 110 Figure Drawing and Portraiture**

Concentrating on the human form, this course includes techniques and exercises designed to impart and improve drawing skills. Offered once a year.

3 cr. Art supply fee \$25.

#### **ART 115 Watercolor Painting**

This course is an approach to watercolor using transparent and opaque techniques. Basics such as stretching paper and laying a graded wash are explored. Subjects range from studio still life to location landscapes. Offered once a year.

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-lives and landscape painting.

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 drying 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 Ancient and Medieval Art**

This is an overview of the origins of art and its evolution from cave paintings in France and Spain to the stained glass windows and sculptures of the great cathedrals of Europe. Art of the ancient Egyptians, Greeks, Etruscans, and Romans, as well as that of the medieval Vikings and Christians, is studied to enhance understanding of the ideas and images that form part of the artistic heritage of Western Civilization. Offered in alternate years.

3 cr.

**ART 202 From The Renaissance to Impressionism**

This is an overview of the art and artists of the four great ages of art: Renaissance, Baroque, Enlightenment, and Modern. From Michelangelo to Monet, the course emphasizes how great artists of Europe and America produced distinctive expressions of themselves and their ages.

*3 cr.*

**ART 204 From Pyramids and Castles to Cathedrals and Skyscrapers**

This course uses a slide presentation introducing students to significant buildings of Europe and America from ancient times to the present. Offered in alternate years.

*3 cr.*

**ART 290/390 Special Topics in Art**

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.*

## **AS AEROSPACE STUDIES (Air Force ROTC/School 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. Also covered are an introduction to ethics and values, introduction to leadership, and application of communication skills. 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 issues in the armed forces; supervision, discipline and military justice; other pre-commissioning topics.

3 cr.

**AS 442 National Security Policy II**

Continuation of AS 441. U.S. Constitution, government and its impact on the military, civil-military relations, contemporary societal issues in the armed forces; supervision, discipline and military justice; other pre-commissioning topics.

3 cr.

**BIO BIOLOGY****(School 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 non-majors, 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 non-majors, 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 College 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 GCR requirements for the Natural Science Perspective.

3 cr.

### **BIO 153 Principles of Environmental Science**

Prerequisite: BIO 101 or CHEM 101 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 College Requirements for the Natural Science Perspective.

3 cr.

### **BIO 154 Bioterrorism and Infectious Disease**

Prerequisite: BIO 101 or BIO 107. Intended for non-science 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 155 Human Neuronal and Hormonal Systems**

Prerequisite: BIO 101. An introduction to the structure and function of the human nervous, sensory and endocrine systems. BIO 101 followed by this course fulfills the GCR requirement for 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 GCR 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 108. 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 210 Vertebrate Physiology**

Prerequisite: BIO 108. Corequisite: BIO 220. This course is a study of the structural and functional mechanisms that underlie the life processes and organ systems in vertebrates. Offered in alternate years.

3 cr.

### **BIO 213 Ecology**

Prerequisite: BIO 108 and BIO 201. 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.

3 cr.

### **BIO 220 Vertebrate Physiology Laboratory**

Prerequisite: BIO 108. Corequisite: BIO 210. This course consists of laboratory exercises in vertebrate physiology. Emphasis is placed on data manipulation and problem solving. Three-hour lab. Offered in alternate years.

1 cr. Laboratory fee \$50.

### **BIO 290 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 304 Histology**

Prerequisite: BIO 108. 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 108, CHEM 209 or concurrently. A study of classical organismal heredity and its molecular basis. Topics will include Mendelian principles, gene structure and function, and changes in genetic material. Offered in alternate years. Three class hours, three-hour lab.

*4 cr. Laboratory fee \$50.*

#### **BIO 308 Comparative Vertebrate Anatomy**

Prerequisite: BIO 210, 220. This course is an evolutionary approach to the study of vertebrate structure. Offered every three years. Three class hours, three-hour lab.

*4 cr. Laboratory fee \$50.*

#### **BIO 310 Cell Biology**

Prerequisite: BIO 108; CHEM 209 or concurrently. 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 alternate years.

*4 cr. Laboratory fee \$50.*

#### **BIO 312 Developmental Biology**

Prerequisite: BIO 108; CHEM 106 or concurrently. 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 every three years.

*4 cr. Laboratory fee \$50.*

#### **BIO 333-334 Independent Study in Biology**

See "Independent Study" on p. 33.

*1-3 cr. Laboratory fee may be required.*

#### **BIO 390 Special Topics in Biology**

Prerequisite: BIO 108 and permission of the instructor. 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 440 Undergraduate Research**

Prerequisite: Senior standing.

*1-3 cr. Laboratory fee may be required.*

#### **BIO 455 Evolution**

Prerequisite: BIO 213 and BIO 306 or permission of the instructor. 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. Offered in alternate years.

*3 cr.*

#### **BIO 480 Internship in Biology**

See "Internships" on p. 35.

*3 cr.*

## **BME BIOMEDICAL ENGINEERING**

### **(School of Engineering)**

#### **BME 201 Foundations of Biomedical Engineering**

Prerequisite: ENGR 110, MATH 133, PHYS 134, Corequisites: MATH 134, CHEM 105. This sophomore level course introduces the students to fundamental concepts in the field of biomedical engineering including mathematical modeling of biological and physiological systems, measurements made from living systems, and modern diagnostic and therapeutic devices that require knowledge at interface of engineering and medicine. Topics covered include basic cell structure and metabolism, biological diffusion and transport processes, and an introduction to the major physiological systems.

*3 cr.*

#### **BME 202 Biomedical Systems**

Prerequisite: ENGR 206. Corequisite: ENGR 208, MATH 236, BME 201 or permission of the instructor. 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 and step response, system stability, and effects of feedback on a system. 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 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, 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, gastrointestinal system, and endocrinology.

3 cr.

**BME 305 Biomedical Engineering Laboratory I**

Corequisite: BME 301 and BME 331. 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 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 electrocardiograms (ECG), enzyme-linked immunosorbent assay (ELISA), thermolodilation, and ethics in the workplace. Additionally, students will be required to participate in the School of Engineering Interdisciplinary Project.

1 cr.

**BME 331 Bioinstrumentation**

Prerequisite: BME 202, ENGR 208. This course studies data acquisition techniques as applied to the human body. Topics include measurement, conversion of analog and digital signals, transduction, electrodes, electrocardiograms, electroencephalograms, electromyograms, respiratory measures, and medical imaging. Students design basic biomedical amplifier circuits, understand the terminology associated with instrumentation and measurement, specify off-the-shelf equipment, and study the latest advances in medical instrumentation.

3 cr.

**BME 332 Biomedical Imaging**

Prerequisite: 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 340 Biomaterials**

Prerequisite: CHEM 105, BME 201, 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, 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, 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.

1 cr.

**BME 431 Advanced Bioinstrumentation**

Prerequisite: BME 331, BME 302, 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, non ideal 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 433 Biomedical Signal Processing**

Prerequisite: BME 202. This course will introduce the concepts underlying the field of biomedical signal processing. Topics include: the nature of biomedical signals, signal classification, noise, noise reduction, correlation, autocorrelation, filtering, sampling, and nonlinear signal models.

3 cr.

**BME 437 Senior Design Projects I**

Prerequisite: Senior BME Standing; Corequisite: BME 405. Working under the supervision of the biomedical engineering faculty, students select a capstone design project, thoroughly research solutions, and present and defend a formal proposal. Students will learn and apply fundamental project management techniques to their projects. They are encouraged to work in multidisciplinary teams on clinically or industrially relevant projects. The students will be responsible for organizing formal design reviews with faculty, clinical or industrial

sponsors, and other students. Students are assessed with weekly progress reports, design reviews, a final written report and an oral defense of the proposal. The proposed project will be carried out 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 451 Biomechanics**

Prerequisite: ENGR 206 or ME 203, and MATH 236. This is a study of the human body and materials applied to the human body and their reaction to forces and moments. Topics include statics and dynamics applied to the body, mechanics of deformable bodies, and strength of materials.

3 cr.

**BME 452 Biofluid Mechanics**

Prerequisite: BME 302, ENGR 206 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**

Prerequisite: 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 480 Internship in Biomedical Engineering**

See "Internships" on p. 35.

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** **(School of Business)**

**BUS 101 First Year Business Seminar**

This is a course designed specifically for new college students in the School 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 literary 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 290: Special Topics in Business**

This is a study of topics in business, such as entrepreneurship, that are not offered on a regular basis.

1-3 cr.

**BUS 301 Integrated Business Operations**

Prerequisite: AC 202, CIS 202, FIN 214, QM 201, MAN 101, MK 200. Must be taken prior to BUS 450 and not concurrently with BUS 450. The course provides the intermediate integrative framework between BUS 101 and BUS 450 for the continuous development of analytical and decision-making skills in the business environment. The student builds upon the introduction to each of the functional areas of a business by learning the methods for assessment across functional areas and integrating the impact of decision-making throughout the organization at the operations level. Established learning outcomes include applying the functional components of a business plan, managing among all of the functional areas, managing corporate

governance and understanding the roles of all stakeholders, applying financial and qualitative analyses.

3 cr. *Laboratory fee \$50.*

**BUS 310 International Practicum (Formerly BUS 300)**

Prerequisite: Sophomore standing and permission 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 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.

1 cr.

**BUS 311 International Practicum Seminar**

Prerequisite: Concurrent enrollment in BUS 310. This course serves as a complement to BUS 310 and may be taken only during the semester the student is enrolled in the corresponding BUS 310 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.

2 cr.

**BUS 340 Business & Society**

Prerequisite: Junior 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.

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 450 Business Strategy**

Prerequisite: Completion of Business Core. Not to be taken concurrently with BUS 301. 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 firms' chosen strategies; and the application of strategic management theories.

*3 cr.*

## **CHEM CHEMISTRY (School 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. Therefore, CHEM 101 followed by this course would meet the General College 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 College Requirements for 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 or 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 course work 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**

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 302 Toxicology (Formerly ENV5 302)**

Prerequisite: Junior standing; BIO 107-108; CHEM 210-220 or permission. 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 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 and CHEM 324 or concurrently. 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.

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.

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.

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.

1 cr. Laboratory fee \$50.

#### **CHEM 333-334 Independent Study in Chemistry**

See "Independent Study" on p. 33.

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**

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 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.

**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 426 Forensic Science II**

Prerequisite: CHEM 210, CHEM 220, CHEM 312, CHEM 322; CJ 325. A continuation of the introductory forensic science course CJ 325, 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.

**CHEM 430 Advanced Topics**

Prerequisite: CHEM 317; 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. 35.

1-3 cr. *Laboratory fee may be required.*

**CHEM 480 Internship in Chemistry**

See "Internships" on p. 35.

3 cr.

## CIS COMPUTER INFORMATION SYSTEMS

### (School of Business)

**CIS 102 Computer Tools for Business**

Prerequisite: None. This course has three components. First, it develops an understanding of the tools and functions of a modern Operating System with a graphical user interface (GUI). Topics such as file types and manipulation are addressed. Second, this course focuses on the practical implementation of spreadsheet models to address business problems. The use of what-if modeling and the use of built-in functions are emphasized. Lastly, this course is a hands-on introduction to database management systems with an emphasis on using database applications in a business context. Topics such as generating data tables, forms, reports and data relationships are explored. A problem-solving approach is utilized.

3 cr. *Laboratory fee \$50.*

**CIS 202 Introduction to Information Systems**

Prerequisite: Sophomore standing. This course is an introduction to information

systems as a discipline including a survey and overview of what IS includes, the role and function of MIS in the business organization, IS job functions and career paths, and the nature and vocabulary of major information system technologies. A lab, comprising at most one third of the course, will provide students with a business-oriented introduction to modern information systems.

*3 cr. Laboratory fee \$50.*

### **CIS 210 Foundations of Web Technologies**

Prerequisite: CIS 202, MATH 112. This course is an introduction to network and Internet technologies underlying contemporary business information systems. It explores network operating systems, server software, Internet protocols as well as Website design, development, and maintenance. This course contributes to fulfilling CIS-major objectives 1, 3, and 4. Specific learning objectives include: (1) Learning how to install a network operating system and basic software for eBusiness application. (2) Understanding requirements and constraints of Web application development. (3) Learning how to build Web pages using HTML/XHTML. (4) Developing skills to enhance Web pages (using CSS, JavaScript, and DHTML). (5) Learning how to apply XML. (6) Learning how to deploy and maintain Websites for business applications. The objectives are assessed based on projects, tests, and class participation.

*3 cr. Laboratory fee \$50.*

### **CIS 300 Foundations of Object-Oriented Programming (Formerly CIS 206)**

Prerequisite: CIS 210, Pre- or co-requisite QM 201. This course is an introduction to computer programming for information systems with emphasis on logic and algorithms. Students are taught computer programming, utilizing object-oriented language and rapid application development environment. Business problem solving and data processing are emphasized. Topics include data types (variables, classes, and arrays), control structures, operations (methods), and modules. The students are required to develop several programming projects that include program design, software development, and user/maintenance documentation. A common object-oriented programming language is utilized. This course contributes to fulfilling CIS-major

objectives 1, 3, and (indirectly) 5. Specific learning objectives include: (1) Learn how to solve business problems via computer programming; (2) Gain an understanding of and skills in developing object-oriented computer programs; (3) Better understand the process of software development, including: analysis, design, implementation, and maintenance; (4) Learning how to use highly productive programming tools. (5) Reach an intermediate level of programming skills using Java. (6) Learn how to write programs that utilize file and database sources residing on computer networks. The objectives are assessed based on projects, tests, and class participation. One cannot receive credit for both CS 181 and CIS 206/300.

*3 cr. Laboratory fee \$50.*

### **CIS 321 Database Management Systems**

Prerequisite: CIS 210. 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. The course contributes to fulfilling CIS-major objectives 1, 4 and 5. Specific learning objectives include: (1) Understanding managerial aspects of data and information; (2) Designing relational data models with emphasis on data normalization; (3) Using query techniques using SQL and query-by-example (QBE); (4) Understanding database architecture and implementation methods; (5) Maintaining data integrity, security and privacy; (6) Understanding program-data independence in applications; (7) An introduction to object-oriented database solutions and emerging database technologies; and (8) Understanding transactions and their role in database recovery. The objectives are assessed based on projects, tests and class participation. This course is equivalent to CS 364.

*3 cr. Laboratory fee \$50.*

### **CIS 333-334 Independent Study in Computer Information Systems**

See "Independent Study" on p. 33.

*1-3 cr. Laboratory fee may be required.*

**CIS 361 Management of Information Systems**

Prerequisite: CIS 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.

**CIS 390-391 Special Topics in Computer Information Systems**

Prerequisite: Junior in CIS 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.*

**CIS 413 Data Communication Systems and Networks**

Prerequisite: CIS 210. 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.*

**CIS 417 Systems Analysis and Design**

Corequisite: CIS 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. *Laboratory fee \$50.*

**CIS 419 Decision Support and Expert Systems**

Prerequisite: CIS 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. *Laboratory fee \$50.*

**CIS 422 Advanced Database Management Systems**

Prerequisite: CIS 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.*

**CIS 428 Systems Development Project**

Prerequisite: CIS 417 and senior standing in CIS. This is an integration of previous course work and an exploration of new issues in CIS. 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. *Laboratory fee \$50.*

**CIS 430 Enterprise Computing**

Pre- or corequisite: CIS 300, CIS 413, and CIS 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 multi-leveled 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 multi-tier architecture. Highly productive development tools are utilized.

3 cr. *Laboratory fee \$50.*

**CIS 480-481 Internship in Computer Information Systems**

See "Internships" on p. 35.

3 cr.

**CJ CRIMINAL JUSTICE  
(School 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 and CJ 210; 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 212 Police, Courts and Corrections**

This course will provide an overview of the 3 major components of the Criminal Justice System and how they work independently but need to work collectively in the fight against crime and purpose to rehabilitate. This class will focus on the collaboration between these systems as well as some new innovations they are practicing in the field. This course will use

examples of the systems working together (i.e. community justice programs, restorative justice and reentry programs).

3 cr.

**CJ 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. This course is equivalent to SO 214.

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 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 at 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 230 Criminal Law  
(Formerly CJ 310)**

Prerequisite: CJ 101 and any 200-level CJ. This is a study of the major felonies (murder, rape, robbery, assault, larceny, burglary, and arson), their definitions, and methods of proof. Offered spring semesters.

3 cr.

**CJ 231 Criminal Investigation  
(Formerly CJ 311)**

Prerequisite: CJ 101 and any 200-level CJ. 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 232 Criminal Procedure  
(Formerly CJ 312)**

Prerequisite: CJ 101 and any 200-level CJ. This course studies the constitutional restrictions upon each aspect of a felony prosecution: arrest, investigation, booking, initial appearance, preliminary hearing, trial and sentencing. Major areas of interest are due process, arrest, search and seizure, right to counsel, and sentencing. Offered fall semesters.

3 cr.

**CJ 234 The Judicial Process  
(Formerly CJ 314)**

Prerequisite: CJ 101 plus any 200-level CJ course 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 semesters.

3 cr.

**CJ 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. This course is equivalent to SO 235.

3 cr.

**CJ/SO 250 Children, Family and the State**

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 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 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. 33.

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. 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, 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 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. This course is equivalent to SO 349.

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 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**

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**

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 412 Research Methods (Formerly CJ 410)**

Prerequisite: Junior standing and PSY 207 or MATH 120 and CJ 210 or SO 322. The aim of this course is to introduce the student to the basic sociological research methods to allow the student to understand and participate in basic quantitative and qualitative research. Each student selects a subject area and conducts an appropriate method of research involving interviews, data collection, measuring, sampling, survey construction, and program evaluation. Each research paper must be properly documented and suitable for publication.

3 cr.

### **CJ 480-481 Internship in Criminal Justice**

See "Internships" on p. 35.

3 cr.

## **CL COLLOQUIA**

### **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 (School of Arts & Sciences)**

### **COMM 100 Principles of Communication (Formerly COMM 201)**

Prerequisite: ENGL 132 or equivalent. This is an introduction to the fundamental theory of interpersonal communication and public speaking. The course explores effective listening, small group communication, nonverbal communication, and similarities and differences between speaking and writing. Offered every semester.

3 cr.

### **COMM 101 Basic Sign Language**

This course is an introduction to American Sign Language, introducing non-signers to the handshape, palm orientation, location, and movement of common signs, as well as the linguistic principles of ASL. Offered every fall semester.

3 cr.

### **COMM 102 Public Speaking (Formerly COMM 202)**

Prerequisite: COMM 100. This course is designed to develop students' skills in researching, composing, and presenting speeches in public, and in adapting principles of public speaking to 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 203 Intermediate Sign Language**

Prerequisite: COMM 101. This course focuses on developing fluency in contemporary ASL. Offered every spring semester.

3 cr.

**COMM 205 Mass Communication**

Prerequisite: ENGL 132 or equivalent, two courses in English writing with grades of "C" or better. This is 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 School of Arts and Sciences. Offered every semester.

3 cr.

**COMM 250 Television Production (Formerly COMM 350)**

Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is an introduction to lighting, sound, videotaping, editing, and script development. Offered every semester.

3 cr. *Equipment Fee \$100.*

**COMM 251 TV Broadcasting (Formerly COMM 351)**

Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is an introduction to writing and presenting TV news stories and commercials. Offered every semester.

3 cr. *Equipment Fee \$100.*

**COMM 290 Special Topics in Communication**

Prerequisite: Two courses in English writing with grades of "C" or better. 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 301 Persuasion and Debate**

Prerequisite: COMM 100/201, two courses in English writing with grades of "C" or better. An advanced public speaking course. Students research and present persuasive speeches and debates, perform ceremonial speaking, and give impromptu and after-dinner talks. Studies of contemporary speakers and their work are included. Offered once a year.

3 cr.

**COMM 305 Introduction to Research in Communication**

Prerequisite: COMM 100, COMM 205. This course covers research methods in communication, including such issues as reliability of information sources, measurement factors and techniques, qualitative vs. quantitative methodology,

experiments, and the ethics of research.

3 cr.

**COMM 311 The English Language**

Prerequisite: junior standing, two courses in English writing with grades of "C" or better. This is an overview of the structure and history of the English language, and of its variation in different speech communities. Dual listed as ENGL 311.

3 cr.

**COMM 315 Language in Communication**

Prerequisite: COMM 100 or equivalent. This course examine the ways in which language is used and misused as a communication tool, as well as a variety of language-based communication issues. The course also examines the structure of Modern English, with emphasis on American English, as well as the varieties of English spoken in the 21<sup>st</sup> century and their historic roots

3 cr.

**COMM 320 Professional Communication**

Prerequisite: COMM 100 or junior standing, two courses in English writing with grades of "C" or better. This is a study of several types of communication that are common in business and the professions. Topics include professional presentations, techniques of interviewing, questionnaire construction, small group dynamics, symposium planning, and presentation. Offered every semester.

3 cr.

**COMM 321 Nonverbal Communication**

Prerequisite: COMM 100, two courses in English writing with grades of "C" or better. The course explores all of the channels of nonverbal communication, analyzing individual, cultural, and contextual variables that affect it. Offered in alternate years.

3 cr.

**COMM 322 Media Planning and Public Relations**

Prerequisite: COMM 100 and two courses in English writing with grades of "C" or better. This is a study of historical and critical views of the practice of public relations; basic public relations writing principles; basic principles of research and analysis for planning appropriate public relations messages and media choices; and ethical principles for the development and evaluation of public relations efforts. Students will examine and critique actual public relations activities in a variety of contexts such as employee and membership relations,

consumer and community relations, and non-profit organizations. They will prepare various writing assignments and a hypothetical campaign proposal. Offered every semester.

3 cr.

### **COMM 324 Media Industries, Government and Society**

Prerequisite: COMM 100, COMM 205. This course will explore 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, 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 interest, 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, the government, and U.S. culture.

3 cr.

### **COMM 326 Race, Gender, and Ethnicity in the Media**

Prerequisite: COMM 100, 205, two courses in English writing with grades of “C” or better. The purpose of this course is to examine 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 study and apply the theory of oppression and liberation developed by Paulo Freire and the key concepts of the cultural studies approach to the analysis of mass media. These concepts include ideology, power, identity, semiology, discourse, and narrative. Students investigate such forms of communication as advertising, popular music, popular fiction, television, film, and pornography. This course satisfies the Behavioral/Social Science requirement of the School of Arts and Sciences. Offered in alternate years.

3 cr.

### **COMM 333-334 Independent Study in Communication**

Prerequisite: junior standing. Two courses in English writing with grades of “C” or better. See “Independent Study” on p. 33.

1-3 cr.

### **COMM 340 Business Communication**

Prerequisite: junior standing, two courses in English writing with grades of “C” or better. The principles of effective professional writing are studied. The course requires extensive practice in planning, organizing, writing, and analyzing letters and short reports as they are used in business and industry. It also emphasizes oral presentations (except for sections taught through the Internet). Offered every semester.

3 cr.

### **COMM 348 Intercultural Communication**

Prerequisite: junior standing, COMM 100, two courses in English writing with grades of “C” or better. This course promotes appreciation 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 School of Arts and Sciences. Offered every semester.

3 cr.

### **COMM 352 TV Broadcasting II**

Prerequisite: COMM 251. This course will focus on advanced TV news reporting with instruction and practice in reporting, writing, and producing in-depth broadcast news stories. Emphasizes investigative techniques, interviewing, writing for broadcast news, photography, voice-overs, and on-the-air talent techniques for production.

3 cr. *Equipment Fee \$100.*

### **COMM/JRNL 360 Sportswriting**

Prerequisite: Two courses in English writing with grades of “C” or better. This course will introduce you 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 your skills in producing your own sportswriting. You will be expected to read copiously and critically and to write (and revise) several short assignments as well as one research-based project.

3 cr.

### **COMM 390 Special Topics in Communication**

Prerequisite: junior standing, two courses in English writing with grades of “C” or better. Topics offered depend upon student interests as well as particular interests of

instructors. This course may be repeated for credit if topic differs.

*1-3 cr.*

### **COMM 480-481 Internship in Communication**

Prerequisite: junior standing. Two courses in English writing with grades of "C" or better. See "Internships," on p. 35.

*1-3 cr.*

### **COMM 490 Seminar in Communication**

Prerequisite: Senior standing, two courses in English writing with grades of "C" or better. Designed primarily for English communication majors, this course is dedicated to intensive guided research of current topics in communication studies. Students explore various areas of communications and integrate these areas into a cohesive whole.

*3 cr.*

## **CPE COMPUTER ENGINEERING (School 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. Three class hours, two lab hours.

*4 cr.*

### **CPE 305 Object Oriented Design for Engineers**

Prerequisite: ENGR 105 or equivalent. This is an introductory course in the design and understanding of abstract data types (ADT). After completing this course, students understand the issues involved with modeling and implementing ADT's with an object based programming (OOP) language,

C++. The student will become familiar with lists, queues, stacks, trees as well as techniques for accessing these ADT's. Performance issues associated with manipulation of these ADT's are introduced. In addition, students learn to identify and practice the OOP concepts and techniques, practice the use of C++ classes and class libraries, modify existing C++ classes, develop C++ classes for engineering applications, use the Standard Template Library (STL) and practice the concepts of Object-Oriented Analysis and Design (OOA/OOD) by developing a C++ based project for an engineering application. The methods for assessing student learning in the course are homework assignments, quizzes, exams and a final design project with a formal presentation.

*3 cr.*

### **CPE 310 Machine and Assembly Language**

Prerequisite: CPE 271, 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 PC's 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, data structures, and program debugging and testing. The methods of assessing student learning in this course are programming assignments, quizzes and tests. Two class hours, two lab hours.

*3 cr.*

### **CPE 330 Computer Organization**

Prerequisite: CS majors, and junior standing. This is an introductory course in processor organization and assembly language programming. Students learn enough basics of digital circuits to understand how a processor functions, and how numbers are represented inside a computer. They then learn how to program this processor in assembly language. Addressing modes, branching, and loop control are included. Students also learn how to test and debug assembly language programs by doing several programming assignments. Students will learn the functions of the assembler, linker, and loader programs. The primary methods of assessing student learning in this

course are programming assignments and exams. This course may not be taken for credit by electrical engineering majors.

3 cr.

### **CPE 355 Real-Time Embedded Kernals (Formerly CPE 350 Advanced Programming Languages)**

Prerequisite: CPE 305 or equivalent, CPE 310 or equivalent. This course introduces students to software engineering issues that arise in medium to large scale systems design. Rather than focus on a particular language, the course introduces 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, and error recovery. They learn to write regular expressions and context free grammars. Students also learn 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 understand the operation and messages presented by any modern commercial translator. The methods of assessing student learning in the course are homework assignments, quizzes, an hour exam and a semester long design project that culminates in a formal presentation.

3 cr.

### **CPE 360 Microprocessor Systems and Design**

Prerequisite: CPE 310, and CPE 271. 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.

3 cr.

**Note: Courses that are numbered 4xx / 5xx are available to entry level graduate students and seniors taking the course as a 400 level elective. The 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.**

### **CPE 420 Computer Architecture**

Prerequisite: CPE 271, CPE 310 or equivalent. 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 425/525 Software Engineering**

Prerequisite: CPE 355. 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 322, CPE 360. Corequisites: 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), 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. Three lab hours.

2 cr

**CPE 435/CPE 535 Requirements Analysis**

Prerequisite: CPE 425/525 or equivalent. This class 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 class 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 include 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 445/545 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 writing program as homework, supervised laboratory work, and the quality of the project.

3 cr

#### **CPE 462/562 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 427, CPE 420 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. After completing this course, students understand issues involved with, concurrent threads, real-time scheduling theory and constraints. In addition, students learn the fundamentals of discrete systems modeling, analysis, and design. They also gain an understanding of how to solve the complete response of a system represented in discrete time. 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, quizzes, exams, and a design project.

3 cr

#### **CPE 475/CPE575 Operating Systems**

Prerequisite: CPE 350 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. 35.

3 cr

#### **CPE 485/CPE 585 Computer Networks**

Prerequisite: ENGR 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

#### **CPE 550 Topics in Compiler Design Theory**

Prerequisite: ENGR 105 or equivalent, CPE 310. This is a first year graduate 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 570 Operating Systems**

Prerequisite: CPE 355 and CPE 420. This is a first-year graduate level 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. They also learn the fundamentals of distributed (and network) operating systems. Students 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 580 Computer Networks**

Prerequisite: ENGR 212 or equivalent. This is a first-year graduate 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). They also understand the problems of error detection and recovery. Students learn to use delay models to predict network specific performance measures and understand the limitations of these models. Students also understand the 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 590 Special Topics in Computer Engineering**

This is a study of an advanced topic in engineering of special interest to computer 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 (School of Arts and Sciences)**

### **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. Students use software packages on microcomputers and mainframes. 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 CIS 101. Offered fall and spring.

3 cr.

### **CS 181 Computer Science I**

This course begins the systemic study of software development using an object-oriented language. This course focuses on the basic techniques of programming and the basic concepts of software engineering and data abstraction, preparing students for the deeper study of data structures. The course typically covers the use of objects and classes, defining and implementing classes, conditional execution, iteration, and vectors. Three class hours and three lab hours. Offered in the fall semester. One cannot receive credit for both CS 181 and CIS 206/300.

4 cr.

### **CS 182 Computer Science II**

Prerequisite: CS 181 or comparable computing experience and permission of the instructor. This course continues the systemic study of software development using an object-oriented language, and continues the focus on the basic concepts of software engineering and data abstraction, preparing students for the deeper study of data structures. The course typically covers the use of arrays, testing, recursion, examples, inheritance, exceptions, applets, GUIs, and threads. Four class hours. Offered in the spring semester.

4 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 283 Data Structures I**

Prerequisite: CS 182. This course is a study of fundamental data structures, including arrays, linked lists, stacks, queues, and binary search trees. Students study the use of recursion, introduction to space/time analysis of algorithms, debugging tools. Offered in the fall semester.

3 cr.

**CS 284 Data Structures II**

Prerequisite: CS 283. This course includes sorting algorithms, hash tables, heaps and priority queues, 2-3 trees, B-trees, and Red-Black trees. Class libraries, the use of data structures in applications, and verification of program correctness are studied. Offered in the spring semester.

3 cr.

**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 330 Web Applications Development**

Prerequisite: CS 284. 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. 33.

1-3 cr.

**CS 340 Computer Graphics: Principles and Applications**

Prerequisite: CS 284 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 284 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 the fall semester.

3 cr.

**CS 360 Data Communication Systems and Networks**

Prerequisite: junior standing in CS or CIS 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 CIS 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 CS 182 or CIS 300. 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 CIS 321. Offered in alternate fall semesters.

3 cr.

**CS 366 Design and Analysis of Algorithms**

Prerequisite: CS 284. 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 182 or CIS 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 a new and 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: CS 284 and junior standing or permission of the instructor. 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 284 or CPE 355; 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 the fall semester.

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 at to automate procedures. Offered in the fall semester.

2 cr.

**CS 480 Internship in Computer Science**

See "Internships," on p. 35.

1-3 cr.

**CS 490 Software Engineering**

Prerequisite: CS 284 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 spring semester.

3 cr.

## **CUL CULTURES PAST AND PRESENT**

### **(School of Arts and Sciences)**

(Elements of Culture “C” and “CA” requirements)

#### **CUL 201-390 Cultures Past and Present**

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. Prerequisite: Sophomore standing.

#### **CUL 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 equivalent to HIST 212 and satisfies both the cultural studies and historical perspective requirements.

3 cr.

#### **CUL 235 The United States and International Perspectives**

Prerequisite: ENGL 100 or equivalent. Open only to non-native 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 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 is designed to help us appreciate our classical heritage with respect to art and architecture, leisure and social priorities, musical and literary contributions, morals, manners, prejudices and folklore. 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 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."

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, Byzantium, 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 310 Comparative Race Relations: U.S. and South Africa**

Prerequisite: Sophomore standing, any one of the following: HIST 111, 112, 218, 219, 326, 354, 361; ENGL 336, 313, 317, 343. 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 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 333-334 Independent Study in Cultures**

Prerequisite: Sophomore standing. See "Independent Study" on p. 33.

#### **CUL 390 Special Topics in Cultures**

Prerequisite: Sophomore 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 (School of Arts and Sciences)**

#### **EC 101 Introduction to Economic Issues**

Not open to students who have completed EC 201. Does not satisfy Economics requirements in School of Business and Engineering. This is an exploratory, relatively nontechnical examination of some important economic issues. The workings of markets are explained using supply and demand analysis. Students are introduced to the issues of inflation, unemployment, fiscal and monetary policy, international trade, the environment, and poverty.

3 cr.

#### **EC 105 The Economics of Crime**

This course does not satisfy the economics requirement in the Schools 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 Schools 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 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 201 Principles of Economics I**

Not open to students who have taken EC 207 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. Prerequisite: None

3 cr.

### **EC 202 Principles of Economics II**

Prerequisite: EC 201. Not open to students who have completed EC 207 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. Prerequisite: EC 201

3 cr.

### **EC 207 Principles of Quantitative Economics**

Prerequisite: MATH 133, MATH 123 or equivalent. Not open to those who have taken 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 290 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 305 Macroeconomics**

Prerequisite: EC 202 or EC 207, MATH 111 or equivalent. 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 306 Microeconomics**

Prerequisite: EC 202 or EC 207 or EC 201 or EC 206, 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 311 Money and Banking**

Prerequisite: EC 202 or EC 207, MATH 111 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 316 American Economic History**

Prerequisite: EC 202 or EC 101 or EC 106 or EC 205. 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 321 Economic Development**

Prerequisite: EC 201 or EC 101 or EC 207. 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. 33.  
1-3 cr.

**EC 340 The Economics of Sports**

Prerequisite: EC 201 or EC 205 or EC 101 or EC 105. 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 351 Economics and Government**

Prerequisite: EC 201 or EC 207. 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 202 or EC 207. 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 201 or EC 207. 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 374 Environmental Economics**

Prerequisite: EC 201 or EC 101 or EC 207. 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 386 Econometrics**

Prerequisite: EC 201 or EC 202 or EC 206 or EC 207; and MATH 112 or MATH 123 or MATH 133; and QM 201 or MATH 120, or PSY 207. 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. 35.  
1-3 cr.

**EC 490 Seminar: Issues in Contemporary Economics**

Prerequisite: EC 201 or EC 202 or EC 206 or EC 207 plus six additional credit hours of 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 (School 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 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: Sophomore 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. This course meets the ILP requirement for education students.

3 cr.

### ED 302 History of American Education

Prerequisite: Sophomore standing. This course is a study of the educational process, both formal and informal, in the United States from the 17th century to the present including coverage of the European antecedents.

3 cr.

### ED 306 Multimedia Presentations

Prerequisite: Sophomore standing. This is a workshop course that treats the planning and production of materials of an instructional, informative, or message-bearing nature using various media techniques: television, motion pictures, slides, audiotapes, and computer technology. Many examples of commercial media presentations are analyzed. Presentations are evaluated by the class. The course is not limited to those planning careers in education, but is open to anyone who wishes

background for making media presentations. Student performance is assessed by written assignments, exams and in-class presentations.

3 cr.

### ED 333-334 Independent Study in Education

See "Independent Study" on p. 33.

1-3 cr.

### ED 350 Teaching of Elementary Reading and Language Arts

Prerequisite: Sophomore standing and 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. 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 at a local elementary school are required for students intending to enter the Elementary Education Program.

3 cr.

### ED 375 Elementary Curriculum and Method

Prerequisite: Sophomore standing, and 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 enter the Elementary Education Program.

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; 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 college faculty member, who is the program supervisor. Both 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; ED 403; ED 409. 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, 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, PSY201, PSY 304, ED 350, ED 375, ED 425 and senior standing, completion of all preliminary elementary education course work. 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 college 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 Program, 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 201, PSY 304, ED 350, ED 375, ED 425 and senior standing, completion of all preliminary elementary education course work, 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. Includes 300 hours of full practicum fieldwork (student teaching) at a local elementary school.

3 cr.

## **EE ELECTRICAL ENGINEERING (School of Engineering)**

#### **EE 205 Linear Circuits I**

Prerequisite: PHYS 134; MATH 134 or concurrently. The course is designed for both EE majors and non-majors. This course is the first of a sequence of two courses designed to give students basic analytical tools used in electrical engineering. Students analyze circuits containing resistors, op amps, and DC sources using Ohm's law, Kirchoff's laws, and several network theorems including Thevenin's theorem, Norton's theorem, and superposition. Students analyze simple circuits and use computer simulation to analyze more complex circuits. They learn to perform transient analysis of simple RL and RC circuits. Students also learn to accomplish AC steady-state analyses of simple linear circuits. In the laboratory, students become proficient in the use of simple electrical test equipment including digital multimeters and oscilloscopes. The methods of assessing student learning in this course are homework assignments, quizzes, tests, laboratory experiments, and written reports on experiments. Three class hours, three lab/tutorial hours.

4 cr.

#### **EE 206 Linear Circuits II**

Prerequisite: EE 205; 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. 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, tests, laboratory experiments, and short reports on experiments. Three class hours, three lab/tutorial hours.

4 cr.

**EE 301 Signals and Systems I**

Prerequisite: MATH 236; EE 206 concurrently.

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. 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, CHEM 105 or equivalent. 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. Co-requisite: MATH 350 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 student 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. Three laboratory hours.

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 322 Electrical Engineering Laboratory II**

Prerequisite: EE 320 or concurrently. This course is the second of a sequence of three courses. The course builds on the skills developed in EE 319 and material learned in junior level courses. In this course students design and build electronic circuits with more than one device, determine parameters of device models, and use those for analysis and design of electronic circuits. The results of the laboratory work are reported to generate an engineering report. The assessment in this course is based on the quality of the work done in the laboratory and the report. Three laboratory hours.

2 cr.

**Note: Courses that are numbered 4xx / 5xx are available to entry level graduate students and seniors taking the course as a 400 level elective. The 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.**

### **EE 411/EE 511 Random Signals and Noise**

Prerequisite: EE 301; ENGR 212. This is a study of signals, both random and non-random. Topics include spectrum analysis, auto-correlation and cross-correlation functions, network analysis of systems with random signals and noise, applications to reception of radar, and space signals. A design project is required.

3 cr.

### **EE 414/EE 514 Microwave Engineering**

Prerequisite: EE 314 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, 5erenadeSV, 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/graduate 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: MATH 350; EE 301 or ME 320. 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, EE 320 and MATH 350. This is a graduate level 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: MATH 350; 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 322. 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, 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. Three laboratory hours.

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: EE 312 or equivalent and EE 320 or equivalent. This is a graduate level 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 Power Engineering**

Prerequisite: EE 314 and EE 301. This is an introductory level course in electrical energy conversion devices such as generators, motors, and transformers. Students, on successful completion of this course, understand the structure and components of an electrical power system and are able to calculate MMF, flux, and flux density in electro-magnetic circuits as used in transformers and rotating electrical machines. Students develop good understanding of the causes of energy losses and are able to calculate these. They learn the need for power transformation; the constructional features of a power transformer; how to use test data for developing circuit model; and how to calculate regulation and efficiency of transformers. They understand principles of energy conversion and are able to calculate force, torque, and mechanical power and its relationship to electrical voltage current and power in generators and motors. Methods of assessment include homework, quizzes, tests, and a short paper on one of the topics related to the course.

3 cr.

### **EE 435/EE 535 Fuzzy Logic**

Prerequisite: Senior or graduate 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 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 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: Senior or graduate standing. 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 350; 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, photodetectors, 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 320 or equivalent and EE 422 or equivalent. This is a graduate level course in the component's 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 I EE 557 Wave Transmission and Reception**

Prerequisites: EE 314 or equivalent. 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.

#### **EE470/EE 570 Computer-Controlled Systems**

Prerequisite: EE 302 and MATH 350. 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. 35.

3 cr.

#### **EE 485 Signal Processing (Formerly EE 580)**

Prerequisite: EE 302 and MATH 350 or equivalent. 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 (School of Arts and Sciences)**

### **Writing Requirements**

English 100-level courses are open only to those students who have not completed their general College 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 college 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 College requirement of a "C" or better in at least two English writing courses is satisfied by receiving a "C" in ENGL 131, ENGL 132, or ENGL 14x, and in ENGL 133, ENGL 15x, 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. A limited number who demonstrate writing competence may,

with the approval of the Director of Composition, take ENGL 14x Tutorial in English Composition concurrently with enrollment in a Cultures Past and Present course. Entering freshmen who demonstrate deficiency in basic writing skills are recommended for ENGL 130-131 or for certain sections of ENGL 132 and ENG 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 college 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 School 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 100-101 English As A Second Language I and II**

These are courses designed for international students at an intermediate level in their use of English. The courses introduce students to college level writing while developing their fluency in the use of the basic elements of written English. The work is adapted to individual needs. May be repeated for credit. Credit for ENGL 100 may not be counted toward fulfillment of the freshman English requirement.

*3 cr. Laboratory fee \$25.*

### **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. Laboratory fee \$25.*

### **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. Taught concurrently with LA 176. Successful completion will satisfy one general college requirement of a "C" in a 100 level English course.

*3 cr. Laboratory fee \$25.*

### **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 non-fiction 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 138 Writers' Workshop**

Prerequisite: Permission of the instructor. Not open to students who have completed the 100-level English requirement. Students who have received less than a "C" in a 100-level course may opt to take an additional course rather than retaking the course. The coursework covers major concepts taught in ENGL 132 and ENGL 133, taught from a different perspective.

*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 College Requirement of a "C" in a 100 level English course. May be taken more than once.

*1 cr. Laboratory fee \$25.*

**ENGL 140-149 Tutorial in English Composition**

Occasionally these courses are offered for freshmen enrolled in Cultures Past and Present during the fall semester. The reading and writing assignments are coordinated with the assignments in the Cultures course. The course covers the emphases of the standard ENGL 132 course.

*3 cr. Laboratory fee \$25.*

**ENGL 150-159 Readings in Cultures Past and Present**

Prerequisite: ENGL 132 or the equivalent. Occasionally these courses are offered for students enrolled in Cultures Past and Present during the spring semester. They provide experience in reading, analyzing, and discussing literature. Texts assigned in Cultures Past and Present, with the addition of substantial readings chosen for this English course, are studied in lectures, class discussions, and writing assignments. The course covers the standard curriculum of ENGL 133.

*3 cr. Laboratory fee \$25.*

**ENGL 180 Oral Communication for Non-native Speakers**

This course is a one-credit course that will address communication issues that non-native speakers face when speaking English. These issues will be addressed by student-centered activities that enhance pronunciation, grammar, and fluency of the students when they communicate. The course will also focus on developing skills that are essential in an academic environment: listening, discussion, presentation, and intercultural communication. In addition, the class will seek to enhance communicative competence with relevant communicative activities such as role play, group problem solving, and discussion of meaningful issues.

*1 cr.*

**ENGL 201 Literacy and Language Skills**

Prerequisite: For students recommended by the Western New England College Education Department. The course is a review of the material covered on the Literacy and Communication test administered by the Massachusetts Department of Education as part of the teacher certification process. The course usually meets twice weekly in the seven weeks prior to the spring sitting of the state test. One day is devoted to a review of the Reading Sub-test, one day to the Writing Sub-test.

*1 cr.*

**ENGL 214 World Literature I**

Prerequisite: Sophomore standing, 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, 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, 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 231 British Literature I**

Prerequisite: Sophomore standing, 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, 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, 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 251 American Literature I**

Prerequisite: Sophomore standing, 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, 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, two courses in English writing with grades of “C” or better. This is a study of twentieth 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, 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: 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.

3 cr.

### **ENGL 303 Introduction to Screenwriting**

Prerequisite: Two English writing courses with a grade of "C" or higher. An introduction to writing for the screen. Topics include 3-act structure characterization, dialogue, theme, and pitching.

3 cr.

### **ENGL 310 Modern Drama**

Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is a study of nineteenth and twentieth 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: Junior standing, two courses in English writing with grades of "C" or better. 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.

3 cr.

### **ENGL 312 Chaucer and His Age**

Prerequisite: Junior standing or permission of instructor, two courses in English writing with grades of "C" or better. 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 fourteenth 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: Sophomore standing, two courses in English writing with grades of "C" or better. 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: Sophomore standing, 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: Sophomore standing, two courses in English writing with grades of “C” or better. This course consists of intensive reading and discussion of Shakespeare’s major comedies and history plays. It satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

**ENGL 318 African American Literature II**

Prerequisite: Sophomore standing, 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, 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 Area I Literature requirement. for Arts and Sciences students.

3 cr.

**ENGL 319 Early 17th Century Prose and Poetry**

Prerequisite: Junior standing or permission of instructor, two courses in English writing with grades of “C” or better. This is a study of non-dramatic 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 324 Memoirs: Signatures of the Self**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. The course explores the imaginative and diverse expressions of men and women—in the past and in the present—who have used the memoir as a vehicle, not for self-indulgent narratives but for rigorous soul-searching and honest self-examination. Most of the memoirists studied have led exceptional lives of personal or public import, and their narratives often record difficult struggles and triumphs over great odds. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

**ENGL 327 Literature and Culture in England, 1780-1832**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. 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: Sophomore standing, two courses in English writing with grades of “C” or better. This is a continued study of the significant attitudes and problems of the nineteenth 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: Sophomore standing, two courses in English writing with grades of “C” or better. 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**

Prerequisite: Two courses in English writing with grades of “C” or better. See “Independent Study” on p. 33.

1-3 cr.

**ENGL 336 Ethnic American Literature**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. This is a critical study of the literature from American under-represented 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 courses in English writing with grades of “C” or better. 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 Area I Literature requirement. for Arts and Sciences students.

3 cr.

**ENGL 339 Children’s Literature**

Prerequisite: Two courses in English writing with grades of “C” or better, 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 Area I Literature requirement. for all majors. An elective for ENGL majors.

3 cr.

**ENGL 341 Caribbean Writers**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. 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: Sophomore standing, two courses in English writing with grades of “C” or better. 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 344 Expository Writing**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. This is a course designed for students who wish to improve their ability to write clearly and accurately. Emphasis is on a variety of techniques for effective writing. The course is open to students from all majors. May be repeated once for credit.

3 cr.

**ENGL 345 Major African American Writers**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. This course will concentrate on African American writers 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 Area I Literature requirement. for Arts and Sciences students.

3 cr.

**ENGL 353 Twentieth Century Poetry**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C”

or better. 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 355 The Development of The Novel**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. This course is a critical examination of the novel as an art form, from its origins to the twentieth century. Emphasis is on major writers of the nineteenth and twentieth 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: Sophomore standing, two courses in English writing with grades of “C” or better. This is a critical survey of twentieth century American fiction, poetry, and drama. Emphasis is on major writers such as Pound, Eliot, Frost, Stevens, Roethke, Lowell, Fitzgerald, Hemingway, Steinbeck, Faulkner, Cather, Morrison, and Miller. This course satisfies the Humanities literature requirement for Arts and Sciences students.

3 cr.

### **ENGL 358 Women in Literature**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. 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 Area I Literature requirement. for Arts and Sciences students.

3 cr.

### **ENGL 366 Crime and Punishment**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C”

or better. 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.

3 cr.

### **ENGL 376 World Short Stories**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. 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: Sophomore standing, two courses in English writing with grades of “C” or better. This course studies heroes and their families from the Hebrew Bible (in English). This course satisfies the Humanities/literature requirements for Arts and Sciences students.

3 cr.

### **ENGL 390-399 Special Topics in English**

Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. 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, 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 courses in English writing with grades of "C" or better. 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 Area I Literature requirement for Arts and Sciences students.

3 cr.

**ENGL 480-481 Internship in English**

Prerequisite: Two courses in English writing with grades of "C" or better. See "Internships," on p. 35.

1-3 cr.

**ENGR ENGINEERING  
(School 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. It enables students to further develop academic and life management skills and to learn how to use College 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 both 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, team work, oral presentation skills, and effective writing. Student are assessed through performance on projects, exams, quizzes, homework, written reports, and oral presentations.

4 cr.

**ENGR 105 Computer Program Design**

Prerequisite: Freshman status in engineering. This is an introductory course in the design of software solutions to engineering and scientific problems using the C programming language. 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 in a structured programming language. Students learn a variety of software design techniques including divide and conquer, top down design, and bottom up design. They develop skills in logic, algorithm design, 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, short and long-term programming, assignments, and exams.

3 cr.

**ENGR 110 Engineering Problem Solving**

Prerequisite: ENGR 103. This course presents methods of solving engineering problems using computer tools. These tools include, but are not limited to, spreadsheets and mathematical packages used by practicing engineers. The focus of the course is on problem-solving methods (from problem identification to modeling to finding a solution) in a "hands-on" environment.

2 cr.

**ENGR 206 Engineering Mechanics**

Prerequisite: PHYS 133; MATH 134 or concurrently. This entry-level course is offered to engineering students outside the mechanical engineering discipline and is designed to teach problem solving techniques in Newtonian mechanics. This course may not be taken for credit by Mechanical Engineering majors.

3 cr.

**ENGR 208 Foundations of Electrical Engineering**

Prerequisite: PHYS 134. Corequisite: MATH 134. Students will learn to analyze DC circuits using sources and resistors. Students will also learn to analyze and design op amp circuits used in instrumentation applications. Students will learn the basics of piecewise linear analysis by studying diode

circuits, including rectifiers. Students will be able to mathematically describe AC steady state signals, and will be able to analyze AC circuits containing resistors, capacitors, and inductors. Students will understand the concepts of basic motors. Students will learn to analyze and test Combinational Logic Circuits. This course cannot be taken for credit by Electrical Engineering majors. Three class hours, three lab/tutorial hours.  
4 cr.

**ENGR 212 Probability and Statistics**

Prerequisite: MATH 134. 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.

**ENGR 333 Independent Study in Engineering**

See "Independent Study" on p. 33.  
1-3 cr. per semester

**ENGR 480-481 Internship in Engineering**

See "Internships" on p. 35.  
3 cr.

**ENVS ENVIRONMENTAL SCIENCE**

**(School of Arts and Sciences)**

**ENVS 301 Waste Management**

Prerequisite: Sophomore standing and six 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 FILM**

**(School of Arts and Sciences)**

(All FILM courses satisfy Aesthetic Perspective Requirements)

**FILM 103 The Art of Film (Formerly FILM 203)**

Prerequisite: ENGL 132 or equivalent. Cinematography as a world-wide cultural movement of the twentieth century is studied. Works from different countries are studied to illustrate the historical development of the art of the film.  
3 cr.

**FILM 201 Criminals, Cops, and Private Eyes (Formerly FILM 301)**

Prerequisite: Sophomore standing. Chronological and analytical viewing of the recurring themes and motifs that define a film genre and reflect America's evolving moral and psychic fascination with crime from 1930 to the present day.  
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 a Citizen Kane, Radio Days, Atomic Cafe, Quiz Show, Network, and the Truman Show.  
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 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 340 Director's Signature: Alfred Hitchcock**

In depth profiling of the formal and stylistic contributions of a director's filmography through viewing and analysis of his/her principal works within the context of personal biography, the history of filmmaking, and the history of viewing and criticism.

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  
(School 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 a 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.

3 cr.

**FIN 312 Financial Markets and Institutions**

Prerequisite: FIN 214, EC 201 and 202 or 207. 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.

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 the 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.

3 cr.

**FIN 322 International Finance**

Prerequisite: FIN 214, EC 201, EC 202. 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.

3 cr.

**FIN 333 Independent Study in Finance**

See "Independent Study" on p. 33.

3 cr.

**FIN 340 Introduction to Financial Planning**

Prerequisite: EC 201, AC 201, QM 201, 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).

3 cr.

**FIN 350 Advanced Corporation Finance  
(Formerly FIN 420)**

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.

3 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.

1-3 cr.

**FIN 417 Investments  
(Formerly FIN 317)**

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 measure and manage risk and return as it applies to equity

securities and their derivatives through modern portfolio diversification techniques.  
3 cr.

**FIN 418 Security Analysis  
(Formerly FIN 318)**

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.

3 cr.

**FIN 480-481 Internship in Finance**

See "Internships" on p. 35.

3 cr.

**FR FRENCH  
(School of Arts and Sciences)**

**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 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 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 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  
(School of Arts and Sciences)**

**FS 480 Internship in Forensic Science**

See "Internships," on p. 35.

1-3 cr.

**GEOG GEOGRAPHY  
(School 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.

**GEOLOGEOLOGY  
(School of Arts and Sciences)**

**GEOLOG 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 (School 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 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 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 equivalent to CUL 212 and satisfies both the cultural studies perspective and historical perspective requirements.

*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 304 Ancient Greece and Rome, 1000 BCE-300 CE**

Prerequisite: Junior standing. 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 308 Medieval Europe, 300-1300 CE**

Prerequisite: Junior standing. 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 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 both the aesthetic perspective and historical perspective requirements.

*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 both the cultural studies perspective and historical perspective requirements.

*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 326 Sugar, Slaves, and Cloth: The Rise of Atlantic Society: 1500-1900**

Prerequisite: Junior standing. This course explores the rise of the plantation complex in the Americas. The course discusses the growing social, economic, and political connections among Africa, the Americas, and Europe.

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 Kievan 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. 33.

1-3 cr.

**HIST 341 History of Modern Germany: 1848 to the Present**

Prerequisite: Junior standing. This is a systematic examination of constitutional, economic, social, cultural, and political issues at work as Germany moved from a collection of monarchies to empire, to republic, to dictatorship, and back to republic again. German contributions to music, literature, art, and philosophy are examined in their social and political contexts.

3 cr.

**HIST 345 World War II**

Prerequisite: Junior standing. This is an approach to this world conflict from the perspective of total war and its impact on modern history. Topics include the politics and diplomacy leading to the war, the military conflict, and the human and material costs.

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 eighteenth 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 354 Civil War and Reconstruction**

Prerequisite: Junior standing. 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 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 twenty-first 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 359 The United States in Vietnam**

Prerequisite: Junior standing. 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 360 The History of Pre-Colonial Africa**

Prerequisite: Junior standing. 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 361 Africa in the Twentieth Century**

Prerequisite: Junior standing. 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 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 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 inter-related 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. 35.

1-3 cr.

**HIST 490 Junior Seminar in History: Evidence, Analysis, and Meaning: An Introduction to Historical Methods**

Prerequisite: Nine credit hours of history and junior standing or permission of the instructor. This seminar introduces the methodological, theoretical, and practical questions involved in the writing of history. Readings will explore several “big questions” of history as expressed in the work of some of the most creative practitioners (past and present) of the discipline.

3 cr.

**HIST 492: Senior Seminar in History**

Prerequisite: HIST 490. A study of past and present methods of historiography and writing on an in-depth topic of a particular phase of history in which students undertake research on a related topic of their choice. This course may be repeated if the topic differs, but also serves as the capstone course for most history majors.

4 cr.

**HIST 495-496 Senior Thesis**

Prerequisite: Fifteen credit hours of history, senior standing, and permission of instructor. This two-course sequence represents the capstone course of the history major. Senior students select a topic in the first semester and carry out supervised research. In the second semester, students write up their

projects under a faculty member's direction and defend the final project before the history faculty.

*2 cr. each*

## 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 college wide history requirement. Offered in Fall only.

*3 cr.*

### HON 120 What is Mathematics?-An Invitation to Effective Thinking

Prerequisite: Acceptance into the Honors Program. Most people do not have an accurate picture of mathematics. For many mathematics is the torture of tests, homework, and problems, problems, problems. Well, toss that notion into the trash! In this course you will discover what mathematics really is and you will hopefully become a fan. Even more important, you will experience intriguing lessons for thinking that can change your life. Along this journey not only will you have fun, but you will also satisfy half of the College's core requirement in mathematics.

*3 cr.*

### HON 133 Love, Blood, and Power: Literature of the English Renaissance

Prerequisite: Acceptance into the Honors Program; 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 201 Technology and Society

Prerequisite: Acceptance into the Honors Program. 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. This course satisfies the general college wide history requirement. (Not open to students who have taken HON 102.)

*3 cr.*

### HON 220 Foundations and Central Ideas of the Natural Sciences

Prerequisite: Acceptance into the Honors Program, and one natural science course with a laboratory. 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. Offered in Spring only.

*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, and history and politics. This course satisfies the cultures "CA" requirement.

3 cr.

### **HON 290 Special Topics in Honors**

Prerequisite: Acceptance into the Honors Program. 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.

### **HON 310 Supermarket Tabloids: Discerning Trash From Truth**

Prerequisite: Acceptance into the Honors Program. From stories in the tabloids to tabloid advertisements for health and beauty products and for psychic hotlines, we are confronted with claims that are not necessarily supported by fact, logic, or experiment. Some of these claims are intentionally fraudulent and others simply misguided. We will explore the ways in which these claims are presented; we will use communication techniques such as audience analysis, persuasion, and language manipulation to detect questionable claims. We will also experimentally examine the science behind some of these claims. For example, we will investigate the feasibility of spontaneous human combustion (we will not use actual human beings) and we will test our psychic abilities in the laboratory. In addition, we will write articles and advertisements promoting questionable claims. Ultimately, we will become masters at discerning trash from truth.

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. 33.

3 cr.

### **HON 370 Religion, Law and Morality**

Prerequisite: Acceptance into the Honors Program and sophomore standing. Since the Golden Age of Athens and before, the interplay of law, religion, and morality has played a central role in shaping community life. This seminar explores (1) the nature and quality of religious thought and its relationship to the idea of law and community affairs, broadly speaking; (2) the relationship of "church and state" in the classic definition and evolving interpretations of the First Amendment to the U. S. Constitution; and, (3) the legitimate roles, if any, of religion and morality in the world of positive law.

3 cr.

### **HON 389 Art in Nature – Nature in Art**

Prerequisite: Acceptance into the Honors Program and sophomore standing. This course explores aspects of the natural world and their representations in the art. These aspects include the idea of the infinite, ideas of paradox and chaos, and properties of the universe and human nature. Also explored are elements of art, such as pattern, symmetry, and self-similarity, that are found in nature. Different ways of discovering and understanding these aspects are examined using ideas from philosophy, science, and the principles of truth, beauty, and reality.

3 cr.

### **HON 390 Special Topics in Honors**

Prerequisite: Acceptance into the Honors Program. 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.

### **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 (School of Engineering)**

### **IE 205 Modeling of Industrial and Service Systems**

Prerequisite: ENGR 103, ENGR 105 or equivalent; Corequisite: ENGR 212. This course introduces common modeling techniques used for industrial and service systems. It covers analytical techniques and methodologies applicable to these functional areas for analysis and design purposes. Physical, mathematical, and computer modeling approaches will be integrated throughout the course.

2 cr.

### **IE 308 Work Analysis and Design**

Prerequisite: ENGR 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. 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 314 Manufacturing Processes**

Prerequisite: ME 309. This is a study of various methods of manufacturing. Areas studied include stages of product processing, equipment determination and justification, tooling metrology, as well as estimating design-to-product cost.

3 cr.

### **IE 315 Quality Control and Engineering Statistics**

Prerequisite: ENGR 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: IE 205, ENGR 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. 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: IE 318. This is a continuation of IE 318 with emphasis on the design process. 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 and ENGR 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, work breakdown 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. Corequisites: 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 Operations Research**

Prerequisite: ENGR 212 or equivalent. This is an introduction to the techniques and application of operations research. Emphasis is on the modeling of real-world problems.

3 cr.

#### **IE 422 Industrial Safety and Ergonomics**

Prerequisite: ENGR 212. This is a study of issues related to human interaction(s) within a workplace. The focus is on industrial safety and ergonomics in industrial workplace design. Other topics include: anthropometry and its impact on industrial design, the principles of industrial hazard avoidance and the roles of NIOSH and its relationship with OSHA.

3 cr.

#### **IE 424 Computer Integrated Manufacturing**

Prerequisite: IE 314. 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 network scheduling. A design project is required.

3 cr.

#### **IE 428 Industrial Design Laboratory III**

Prerequisite: IE 315; IE 326; 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 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 Project Preparation**

Corequisite: IE 410; 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.

1 cr.

#### **IE 440 Senior Design Projects**

Prerequisite: IE 410; IE 439; graduating senior status. 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. 35.

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 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 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 314 Textiles Through Time**

Prerequisite: Sophomore 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: Three credit hours in Economics and 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 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.

**INST INTERNATIONAL STUDIES (School 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. 35.

**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

## JRNL JOURNALISM

**JRNL 101 Journalism I  
(Formerly JRNL 210)**

Prerequisite: ENGL 132 or equivalent. This is 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 hands-on experience with producing a college newspaper. Students may be responsible for writing, editing, photography and graphics, layout and design, advertising, as well as aspects of business management.

1 cr

**JRNL 201 Journalism II  
(Formerly JRNL 310)**

Prerequisite: JRNL 101 or equivalent. This course focuses on long news and feature writing assignments. Topics include interviews, judging sources, researching a story, scientific reporting, sports reporting, and shield laws and confidentiality.

3 cr

**JRNL 220 Producing a College Newspaper**

Prerequisite: Permission. In this course, students learn all aspects of newspaper production, including writing, editing, layout, research, checking sources, and meeting deadlines for a college newspaper, the *Westerner*.

3 cr

**JRNL/COMM 360 Sportswriting**

Prerequisite: Two courses in English writing with grades pf "C" or better. This course will introduce you 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 your skills in producing your own sportswriting. You will be expected to read copiously and critically and to write (and revise) several short assignments as well as one research-based project.

3 cr

## LA LIBERAL ARTS (School of Arts and Sciences)

**LA 100 First Year Seminar**

This course represents a segment of the general education requirements, specifically that 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 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 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 college recognized internship program. See "Internships" on p. 35.

*No credit*

**LBC 208 Study Abroad**

Participation in a structured, college 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 co-curricular 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 college recognized internship program. See "Internships" on p. 35.

*No credit*

**LBC 408 Study Abroad**

Prerequisite: LBC 2xx. Participation in a structured, college recognized study abroad program.

*No credit*

**LBC 409 Research**

Prerequisite: LBC 2xx. Participation in an independent or semi-independent research project.

*No credit*

## LS LEGAL STUDIES (School of Business)

### LS 301 Legal Aspects of Business

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.

### LS 309 Legal Studies Simulation

Prerequisite: LS 301. 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.

### LS 360 Legal Studies for Sport Management

Prerequisite: MAN 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 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.

### LS 424 Legal Studies for Human Resource Management

Prerequisite: LS 301 or LS 360, MAN 323. This 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 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.

## MAN MANAGEMENT (School of Business)

### MAN 101 Principles of Management

The course provides an overview of the importance of the role of management in organizations. The course establishes a basis from which students can recognize and understand the relevant and varied roles associated with the management function in organizations. Key learning outcomes include the recognition and understanding of: the historical context surrounding the emergence of management theory, concepts, and practices; basic models of leadership; the process of effective organizational change; and the key elements of effective decision-making. Students will develop competencies and skills through practice in the areas of presentation, teamwork, writing, and research.

3 cr.

### MAN 204 Organizational Behavior

Prerequisite: MAN 101. 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.

3 cr.

**MAN 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; and research skills including data collection and analysis.

3 cr.

**MAN 308 Employee 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.

3 cr.

**MAN 311 International Management**

Prerequisite: MAN 101. The course focuses on issues related to managing in the international business environment. Coverage of a broad spectrum of issues will facilitate the attainment of learning outcomes focused on the recognition and application of concepts and practices that include: international trade theories; comparative and competitive advantages; multinational corporations; European Union and NAFTA; impact of cultural differences in

managing a multinational corporation; and ethics and social responsibility.

3 cr.

**MAN 315 Organizational Theory**

Prerequisite: MAN 101 and MAN 204 or PSY 302, or MAN 250. 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 MAN 204 or PSY 302, or MAN 250, 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.

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; non-traditional learning sources in everyday leadership opportunities.

3 cr

**MAN 333 Independent Study in Management**

See “Independent Study” on p. 33.

3 cr

**MAN 341 Leadership and Change**

Prerequisite: MAN 101 and MAN 204. 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 355 Sport Facility Planning and Management**

Prerequisite: MAN 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, arenas, resorts, and health and fitness clubs; 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

**MAN 366 Sport Marketing**

Prerequisite: MK 200 and MAN 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

**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.

1-3 cr

**MAN 422 Conflict Resolution**

Prerequisite: MAN 101, MAN 204, and MAN 308. The course provides in-depth coverage of conflict-resolution in organizational settings. Key learning outcomes focus on the applications of: alternative dispute resolution theories, theory of third-party intervention, the role of mediation, collective bargaining, negotiations, and grievance arbitration.

3 cr

**MAN 433 Performance Team Leadership**

Prerequisite: 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, use, 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.

3 cr

**MAN 450 Collegiate Athletics/Practicum**

Prerequisite: MAN 250; sport management majors only. This course provides the student with an opportunity to combine classroom instruction with hands-on experience in sport management through a practicum in the College’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 sport-related programs and services, development of professional skills, understanding of practice of sport management, and refinement of career direction.

3 cr.

**MAN 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 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 6-credit course designed to be taken in the senior year. Concurrent enrollment in MAN 460 and MAN 461 is required.

3 cr. each.

**MAN 465 Seminar in Sport Management**

Prerequisite: MAN 250, MAN 355, and MAN 366 and LS 360. The course examines contemporary issues in sport management. Key learning outcomes focus on understanding, use 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.

3 cr.

**MAN 480-481 Internship in Management**

See "Internships" on p. 35.

3 cr.

## MATH MATHEMATICS (School of Arts and Sciences)

**MATH 100 Algebra Fundamentals**

Prerequisite: One year of secondary school algebra. This is a review of the fundamentals of high school algebra designed for students who need a review in preparation for MATH 111 Analysis for Business and Economics I. May not be counted toward the general college mathematics requirement; may be taken for credit only as a general elective. Offered upon demand.

3 cr.

**MATH 107 Mathematics For Elementary Education I**

Prerequisite: Successful performance on the Western New England College 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 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 College 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. A brief study of integral calculus as it applies to probability distributions is also included. Emphasis is on the problem-solving approach with use throughout of the graphing calculator and a spreadsheet program. TI-83 Calculator is required. Offered fall and spring semesters.

3 cr.

### **MATH 112 Analysis for Business and Economics II**

Prerequisite: MATH 111. A continuation of MATH 111, this course considers modeling with multi-variable 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, and descriptive statistics. A brief study of optimization of multi-variable functions using calculus is also included. TI-83 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, Hamilton circuits, minimum network problems, Fibonacci numbers, the golden ratio, and fractal geometry. Students who have successfully completed MATH 116 cannot receive credit for this course. 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 semester.

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 upon 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  
(Formerly MATH 207)**

Prerequisite: Successful performance on Western New England College 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 PSY 207, QM 203, or ENGR 212. Credit for both this course and PSY 207 or QM 201 or MATH 207 is not permissible. TI-83 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; elasticity of demand; inventory control; and compound interest. 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 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, consumers' and producers' surplus; and probability distributions. Credit for both this course and MATH 134 is not permissible. TI-83 calculator is required. Offered fall and spring semesters.

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 an introduction to single-variable differential calculus, with an emphasis on trigonometric, exponential, and logarithmic functions. Topics include functions, parametric curves, limits, continuity, the derivative and applications of the derivative, and indeterminate forms. Credit for both this course and MATH 123 is not permissible. TI-86 graphing calculator is required. Offered fall and spring semesters.

4 cr

**MATH 134 Calculus II**

Prerequisite: MATH 133. This course is an introduction to single-variable integral calculus, with emphasis on trigonometric, exponential, and logarithmic functions. Topics include antiderivatives, the integral, the Fundamental Theorem of Calculus, techniques of integration, applications of integration, differential equations, and infinite sequences and series. Credit for both this course and MATH 124 is not permissible. TI-86 graphing calculator is required. Offered fall and spring semesters.

4 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 three-dimensional analytic geometry, vectors and vector functions, partial differentiation, and multiple integration. TI-83 calculator is required. Offered fall and spring semesters.

3 cr.

**MATH 236 Differential Equations**

Prerequisite: MATH 134. This is a survey of the standard techniques for solving ordinary differential equations. Emphasis is on first and second order linear equations with a focus on applications. The Laplace transform method and some "one-step" numerical methods of solution are included. TI-86 calculator is required. Offered fall and spring semesters.

3 cr.

**MATH 250 Applied Discrete Mathematics**

Prerequisite: PH 204 and either MATH 124 or MATH 134. This course covers concepts of induction, recursive definitions of sets, sequences, and operations; relations and functions: partial orderings, topological sorting, and equivalence relations; trees and graphs: adjacency list and matrix representations, depth and breadth first searching, shortest path, spanning tree, Euler and Hamilton paths, articulation points, and Warshall's algorithm. Offered in the spring semester.

3 cr.

**MATH 261 Discrete Structures I**

Prerequisite: PH 204 and either MATH 124 or MATH 134; or permission. This is a first course in discrete mathematical structures with an emphasis on the foundations of higher mathematics. It is designed for students who need a transitional course to bridge the gap between the study of calculus and the study of a variety of upper division mathematics courses where the ability to think like a mathematician is critical. Emphasis is on exploring, thinking, and thought processes as opposed to "how to do it" when solving problems. The topics include sets, sequences, relations, functions, the

language of mathematics, proof and exploration, induction, cardinality, algorithms, and recursion. Offered in the fall semester.

3 cr.

**MATH 262 Discrete Structures II**

Prerequisite: MATH 261 or permission. This is a continuation of the study of discrete mathematical structures with an emphasis on the foundations of higher mathematics. The topics include combinatorics, graphs, and trees. Emphasis is on the exploration of mathematical ideas by working with examples, asking questions, making guesses, and testing conjectures. Applications of the topics are presented in several diverse fields. Offered in the spring semester.

3 cr.

**MATH 272 Probability**

Prerequisite: MATH 235. This is a calculus-based course in the theory of probability. Topics include sample spaces, combinatorics, axioms and rules of probability, conditional probability and independence, discrete and continuous random variables, mathematical expectation, and the moment generating function. Offered in alternate spring semesters.

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 306 Linear Algebra**

Prerequisite: MATH 124 or MATH 134. Topics covered in this course include vectors and matrices, systems of linear equations, vector spaces, mappings, determinants, eigenvalues and eigenvectors, and transformations. Applications in many fields are discussed. The computer is used at the discretion of the instructor. TI-86 calculator is required. Offered in the 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 first actuarial examination. Topics are selected from the areas of calculus, real analysis, and probability and statistics 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**

Prerequisite: Senior standing. See "Independent Study" on p. 33.

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 every fall semester, and in the spring upon demand.

3 cr.

**MATH 363 Mathematical Foundations and Methods for Computer Science**

Prerequisite: MATH 262 and CS 284, 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 fall semesters.

3 cr.

**MATH 371 Modern Aspects of Geometry**

Prerequisite: MATH 261. 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 fall semesters.

3 cr.

**MATH 373 Mathematical Statistics**

Prerequisite: MATH 272. This course and the prerequisite are intended to prepare students to take the actuarial exam on probability and statistics. Topics include sampling distributions of certain statistics, confidence intervals, tests of hypotheses, regression and correlation, goodness of fit tests, and Bayesian estimation. Offered upon demand.

3 cr.

**MATH 377 Elementary Number Theory**

Prerequisite: MATH 261. 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; gcds; prime factorization; congruencies; 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 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 261. This course covers introductory topics in the general theory of topological spaces. Included are examinations of plane topology and topological properties of metric spaces. Offered on demand.

3 cr.

**MATH 418 Introduction to Modern Algebra**

Prerequisite: MATH 261. This is an introduction to the abstract theory of groups, rings, and fields. Topics include homomorphisms and polynomials and their roots. The emphasis is on the axiomatic approach to algebra and the construction of proofs. Offered in alternate spring semesters.

3 cr.

**MATH 420 Mathematical Modeling**

Prerequisite: MATH 272; MATH 236 or MATH 311. 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 the spring semester.

3 cr.

**MATH 421 Real Analysis**

Prerequisite: MATH 235. 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. Offered in alternate spring semesters.

3 cr.

**MATH 427 Complex Analysis**

Prerequisite: MATH 235. 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 480-481 Internship in Mathematics**

See "Internships" on p. 35.

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 (School of Engineering)

**ME 202 Statics  
(Formerly ME 106)**

Prerequisite: MATH 134 or concurrently; PHYS 133; ENGR 103, ENGR 110 or concurrently. This course is designed both to teach problem-solving techniques and to provide students with the necessary background to take succeeding courses in solid mechanics. Students will become familiar with the analysis of two- and three-dimensional force systems using both scalar and vector techniques. These systems include frames, machines, trusses and simple structures. Additionally, students will have the ability to draw free body diagrams and apply the principles of static equilibrium to both particles and rigid bodies and to analyze problems involving friction. Students will determine the centroids of lines, areas and

volumes and the moments of inertia of areas and masses using calculus and composite section methods. A project of a typical statics problem is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

**ME 203 Dynamics**

Prerequisite: ME 202. This course is designed to provide students with a clear understanding of the theory and applications of dynamics. The course depicts realistic situations encountered in engineering practice. Students will learn how to apply Newton's Second Law of Motion to study the effects caused by an unbalanced force acting on a particle; use the principle of work and energy to solve problems involving forces, displacements, and velocities; determine the power and efficiency of machines; solve problems involving impact of bodies; and analyze problems involving the planar kinematics and kinetics of rigid bodies. A project of a typical dynamics problem is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

**ME 205 Measurement Computing**

Prerequisite: ENGR 105 or equivalent, and ENGR 208. 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, end quizzes. One class hour and 1.5 laboratory hours.

2 cr.

### **ME 208 Mechanics of Materials**

Prerequisite: ME 202 or ME 106. Corequisite MATH 235. This introductory course is offered to both mechanical engineering majors and non-majors 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; MATH 235. This introductory course is offered to both mechanical engineering majors and non-majors 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 non-majors 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 non-reactive 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; 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 and ME 205. 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; ME 208; ME 205 or concurrently; and ENGR 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 309; ME 313; ME 316 or concurrently, or permission of the ME laboratory 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 with other team members to perform laboratory experiments in materials science, mechanics of materials, fluid mechanics, thermodynamics, data acquisition, 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 semester-long team design project under the supervision of faculty project advisors. Periodic written progress reports and a final written report are submitted, and, 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. One class hour, one three hour lab.

2 cr.

### **ME 316 Fluid Mechanics**

Prerequisite: ME 203; ME 303 or permission of instructor. This introductory course is offered to both mechanical engineering majors and non-majors 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, determine hydrostatic forces on submerged surfaces, develop and use the continuity, momentum and energy equations, understand dimensional analysis and dynamic similitude, analyze flow in closed conduits, calculate the drag force on various two and three-dimensional bodies, and understand boundary layer theory, model testing, and fluid measurement techniques. A team design project involving a typical fluid dynamics team design problem is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.

3 cr.

### **ME 320 Mechanical Vibrations**

Prerequisite: ME 203; 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 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 417 Heat Transfer**

Prerequisite: ME 303; ME 316. This senior level course is offered to both mechanical engineering majors and non-majors 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 (Formerly ME 519)**

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 422 Control Systems**

Prerequisite: MATH 350; ME 203. 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 425 Design of Machine Elements**

Prerequisite: ME 208; ME 309. This senior level course is offered to mechanical engineering majors and 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 (Formerly ME 526)**

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 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 CAD/CAM manufacturing exercise; the second is a vibrations analysis; the third is in energy systems analysis; and, the fourth is an interdisciplinary, semester-long team design project where team members work on a semester-long project under the guidance of a faculty project advisor. 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 and the oral presentation. One class hour, one three hour lab.

3 cr.

#### **ME 437 Design Projects**

Corequisites: 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 status. 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 resume, 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 the 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 (Formerly ME 544)**

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 (Formerly ME 635)**

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 449 Computer-Aided Engineering (Formerly ME 542)**

Prerequisite: Senior 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  
(Formerly ME 660)**

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, 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 the 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  
(Formerly ME 551)**

Prerequisites: ME 304, 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. 35.

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  
(School 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  
(School of Business)**

**MK 200 Principles of Marketing  
(Formerly MK 101)**

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.

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.

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 integrated marketing communications.

3 cr.

**MK 318 Marketing Research**

Prerequisite: CIS 202, MK 200, QM 201. 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.

3 cr.

**MK 320 Price and Product Strategy**

Prerequisite: EC 201 or EC 206, MK 200, MK 301, and QM 201. 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.

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, organization, forecasting, and reporting of individual sales personnel and group sales activities are emphasized.

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.

3 cr.

**MK 333 Independent Study in Marketing**

See “Independent Study” on p. 33.

1-3 cr.

**MK 340 Promotion Design and Applications**

Prerequisite: CIS 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.

3 cr.

**MK 346 Relationship Marketing**

Prerequisite: CIS 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 E-Commerce Electronic Marketing—Issues and Strategies**

Prerequisite: CIS 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 390 Special Topics in Marketing**

This course is a study of advanced topics in marketing of special interest to marketing majors, but not carried in the catalog on a regular basis.

1-3 cr.

### **MK 411 Multinational Marketing**

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.

3 cr.

### **MK 421 Marketing Management**

Prerequisite: Senior standing and MK 318. 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.

3 cr.

### **MK 422 Campaign Planning and Management**

Prerequisite: MK 317 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.

3 cr.

### **MK 440 Marketing Seminar**

Prerequisite: Senior Marketing or Marketing Communications/Advertising standing and MK 421 or MK 422, intended to be taken

during the student's final semester. This course is an examination of a variety of viewpoints regarding marketing and business. Through reading and discussion, students develop a critical perspective of the field. An area of interest is researched, and findings are presented in a position paper.

3 cr.

### **MK 480 Internship**

See "Internships" on p. 35.

3 cr.

## **ML MILITARY LEADERSHIP (Army ROTC/School 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 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**  
**(School of Arts and Sciences)**

(All MUS courses satisfy Elements of Culture "A" requirement.)

**MUS 101 Music Appreciation**

This is a non-technical course designed with the listener in mind. The 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. Offered every semester.

3 cr.

**MUS 110 Beginning Guitar**

This course is designed as an introduction to both lead and rhythm guitar for those with little or no experience on the instrument. Skills to be developed include: reading both standard music notation and Tablature; playing melodies with a pick (with correct pick direction); learning to move between common chords smoothly; basic strumming styles; and basic fingerstyle guitar techniques.

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.

3 cr.

**MUS 151-152 Campus Chorus**

Students participate in the performance of the campus chorus. May be taken more than once.

1 cr.

**MUS 161-162 Pep Band**

Students participate in the performances of the college's pep band. May be taken more than once.

*1 cr.*

**MUS 171-172 Jazz Ensemble**

Students participate in the performances of the college's jazz ensemble. May be taken more than once.

*1 cr.*

**MUS 181-182 Concert Band**

Prerequisite: Permission. Students participate in the practice and performance of the college'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**

This course is designed to be an introduction to the art and science of music theory—the basic building blocks of constructing music. Through study of the text *Basic Materials in Music Theory*, it is intended that students will gain a basic working knowledge of musical notation, structure, and harmony. Work for the class will include, at times, minimal singing and some work at the piano. It is expected that you will practice outside of class. There may also be some small composition exercises assigned, mostly for those who want to learn more about composition.

*3 cr.*

**MUS 202 The Art Of Song: Ensemble Vocal Technique**

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 vocal production, and will learn fundamentals of music reading, musicianship and choral singing. Lecture rehearsals may be augmented with assigned listenings and video screenings.

*3 cr.*

**MUS 210 Intermediate Guitar**

Prerequisite: MUS 110 or permission. This course will provide an introduction to the music theory, ear training and technical skills that offer a starting point for the study and

practice of improvised lead guitar. Prospective students should already be playing melodies on guitar confidently. Use of an acoustic guitar is preferred for classroom use.

*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.

*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 330 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.

*3 cr.*

**MUS 331 Rock & Roll: 1950 to 1990**

An exploration of the evolution of rock & 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.

*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.

## **PEHR PHYSICAL EDUCATION, HEALTH, AND RECREATION (School 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.

**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. (laboratory fee \$10)

**PEHR 153-199 Lifetime Activities Series**

These courses are to be taken in the freshman year. In keeping with the College 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 attendance 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 attendance, 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, 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 attendance, 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 attendance, 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 attendance, 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. Attendance, 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 attendance, 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 attendance and 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 attendance participation and two brief exams on playing rules, court dimensions and history of the game.

*1 cr.*

**PEHR 181 Personal Fitness-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. This course concentrates on the skill related components of personal fitness. The student will become 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 attendance, a training program and a final project.

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 attendance, 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 freshmen 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 health care, basic first aid and CPR skills, sport first aid for specific injuries. The course will include 10 hours of field experience with the Western New England

College training staff. It will be taught by one of our certified athletic trainers.

3 cr.

## **PH PHILOSOPHY (School of Arts and Sciences)**

All PH courses except PH 110, PH 204, and PH 304 satisfy the ethical perspective requirement (GCR).

### **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?” “What is the best form of government?” Offered every semester.

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. 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 Elementary Logic)**

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.

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 209 Philosophy in Literature**

Not open to students who have had PH 103. This is an exploration of fundamental issues in philosophy as they are presented in major literary and philosophic works. The course explores the concept of the self, the problem of evil, free will and determinism, ideals in living, and views on the nature of reality. The readings may include Kafka's *Metamorphosis*, Voltaire's *Candide*, Dostoevsky's *Notes from Underground*, and Crane's *The Open Boat*. Offered in alternate years.

3 cr.

### **PH 210 Ethics for Social Workers**

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. 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 220 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*.

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 303 Social and Political Philosophy**

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?" "Is capitalism preferable to socialism?" Offered in alternate years.

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 in alternate years.

3 cr.

**PH 309 Biomedical Ethics**

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 health care, 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 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 322 Religions in America**

Prerequisite: Sophomore standing. This course is designed as a comprehensive introduction to the role religious thought has played and continues to play in American life.

3 cr.

**PH 333-334 Independent Study in Philosophy**

See "Independent Study" on p. 33.

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.

3 cr.

**PH 341 Modern and Contemporary Philosophy**

Prerequisite: Sophomore 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.

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.

**PHYS PHYSICS****(School 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. 2 class hours, 3 lab hours.

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**

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 an 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. Restricted to Elem Ed students.

*3 cr.*

**PHYS 123 Physics For Pharmacy**

Prerequisite: MATH 123 and MATH 124. This course is a calculus-based introduction to the fundamental principles of mechanics covering applications to biology and the life sciences. Emphasis is placed upon problem solving and the development of solutions from first principles. Students gain an understanding of kinematics, statics, gravitation, Newton's laws of motion, and their application to translational and rotational dynamics, energy, momentum, electrostatics, and fluid flow.

*4 cr.*

**PHYS 131 Elements of Mechanics I**

Corequisite: Enrollment in MATH 133. This is a course designed for students who have no background in secondary school physics or for those needing a review. This problem-solving course covers concepts in mechanics such as motion, Newton's laws, and energy. Credit for both this course and Physics 101 is not permissible.

*3 cr.*

**PHYS 132 Elements of Mechanics II**

Prerequisite: Physics 131, MATH 133, or the equivalent. This is a discussion of concepts in mechanics such as linear motion, Newton's laws, energy, momentum, rotation, simple harmonic motion, and waves with an emphasis on problem-solving. Three class hours, three-hour lab.

*4 cr.*

**PHYS 133 Mechanics**

Prerequisite: One unit of secondary school physics; MATH 123, 124, 133 or concurrently. 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 132 or 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: PHYS 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. This course satisfies the new GRC requirements when either prerequisite is taken.

*3 cr.*

**PHYS 152 Energy and Mankind**

Prerequisite: PHYS 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. PHYS 101 followed by this course will satisfy the Natural Science Perspective.

*3 cr.*

**PHYS 155 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.*

**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**

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 333-334 Independent Study in Physics**

See "Independent Study" on p. 33.

*1-3 cr. Laboratory fee may be required.*

**PHYS 390 Special Topics**

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. 33. 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 (School 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 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 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 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, 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 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 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, health care, 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 POSC 102. This is a study of the developing societies of the world in the context of rapidly changing socio-economic 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 POSC 102. 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 POSC 102. 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 POSC 102. 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. 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. 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 Whitehouse and the President's interaction with other governmental institutions.

3 cr.

**POSC 324 Parties and Elections**

Prerequisite: POSC 102. 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. 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. 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. 33.

1-3 cr.

**POSC 338 Challenges in Local Government Management**

Prerequisite: POSC 102. 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 POSC 102. 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. This is an examination of how political institutions have addressed the issue of environmental quality, waste management, clean air and energy policy are some of the topics covered. The focus of the course will be on environmental politics in the United States.

3 cr.

**POSC 350 American Foreign Policy**

Prerequisite: POSC 101 or POSC 102. 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 POSC 102. 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: Sophomore 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. 35.

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  
(School 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 instructor. 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 Social Sciences**

Prerequisite: MATH 100 or higher. This is an introduction to the basic descriptive and inferential techniques for presenting, analyzing, and interpreting data gathered in the social sciences. Topics include frequency distributions and graphs, measures of central tendency and variability, score conversions, correlation and regression, sampling and sampling distributions, hypothesis testing, tests of significance, confidence intervals and effect size. Credit for both this course and MATH 207/MATH 120 or QM 201 is not permissible.

*3 cr.*

**PSY 212 Adolescent Development**

Prerequisite: PSY 201. 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 250/251 Intermediate Physiological Psychology Research**

Prerequisite: Permission of the instructor. In this course the student will increase their knowledge and skills in general laboratory techniques by assisting in surgical procedures, histology, drug administration, and in designing and performing experiments.

*1-3 cr. each course.*

**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. 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 sophomore 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. 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. 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; PSY 207 or QM 201 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; PSY 207 or permission of the instructor. 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; PSY 313 or permission of the instructor. 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 312 Physiological Psychology**

Prerequisite: PSY 101; College BIO or permission of the instructor. This is a systematic study of the physiological bases of behavior with an emphasis on the role of the central nervous system. Topics include the structure and function of the nervous system, sensation and perception, neuroanatomy and the biochemistry of learning, memory, emotions, affective disorders, and substance abuse.

3 cr.

**PSY 313 Learning**

Prerequisite: PSY 101 and sophomore standing. 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 314 Social Psychology**

Prerequisite: PSY 101 and sophomore standing. This is a study of the individual in society including interactions and role-relationships with group members. The emphasis is on socio-cultural factors affecting behavior and their effects on motivation, personality, attitudes, prejudices, opinions, interpersonal perceptions, and non-verbal communication.

3 cr.

**PSY 315 Cultural Psychology**

Prerequisite: PSY 201 or permission of the instructor. 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 sophomore 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 sophomore 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, hypnosis and lie detection, police interrogation and confession, insanity, domestic violence, sexual abuse, the death penalty, and public policy.

*3 cr.*

### **PSY 320 Health Psychology**

Prerequisite: PSY 101 and sophomore standing. 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 interpretation, stress hardiness, and prevention. Students will also learn and practice a variety of intervention protocols, including the relaxation response.

*3 cr.*

### **PSY 321 Sports Psychology**

Prerequisite: PSY 101 and sophomore 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 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: 9 credits in Psychology; PSY 312 or permission of the instructor. 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 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 333-334 Independent Study**

See "Independent Study" on p. 33.

*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 350/351 Advanced Physiological Psychology Research**

Prerequisite: PSY 250/251 and permission of instructor. In this course the student will further increase their knowledge and skill level of general laboratory techniques by performing surgical procedures, histology and drug administration. The student will conduct research more independently; assist in the training and supervision of other students; and read, comprehend and provide a synopsis of relevant research articles.

1-3 cr. each course

**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 413 Learning, Memory and Cognition**

Prerequisite: PSY 313 and junior standing. This is an advanced examination of the basic research and theories in learning, human memory and cognition, and their applications to human behavior. Topics include operant and respondent conditioning, memory, cognitive theory, conceptual behavior, and biological influences on learning, memory, and cognition.

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 instructor. This is a survey of 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. Students will prepare weekly reaction papers on each of the major theories of counseling and psychotherapy covered.

3 cr.

**PSY 418 Behavioral Counseling Methods**

Prerequisite: PSY 313; PSY 416 or permission of the instructor. 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**

Prerequisite: Junior psychology standing or permission of the instructor. This is an examination of the history of psychology that includes major philosophical and scientific influences such as Darwin, Wundt, Freud, Galton, 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.

3 cr.

**PSY 421 Modern Theories of Psychology**

Prerequisite: PSY 313 and junior psychology standing or permission of the instructor. 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 Undergraduate Research**

Prerequisite: PSY 309, senior standing or permission of the chairperson of psychology. See "Undergraduate Research" on p. 35.

3 cr.

**PSY 450/451 Senior Physiological Psychology Research Project**

Prerequisite: PSY 350/351 and permission of the instructor. In the first semester of this course the student will prepare and present a research proposal to the Psychology faculty and students, collect data, and work on the Introduction and Methods section of their research paper. In the second semester the student will complete the data collection, present the results to the Psychology faculty and students, and complete the research paper in APA format. The student will also assist in preparing the data for publication if applicable.

3 cr. each course

**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. 35.

1-3 cr.

**QM QUANTITATIVE METHODS  
(School of Business)****QM 201 Introduction to Business Statistics**

Prerequisite: CIS 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, the chi-squared test of statistical independence, and simple linear regression. The use of computing tools in statistical analysis is emphasized heavily. Credit for both this course and MATH 207/MATH 120 is not permissible.

3 cr. Laboratory fee \$25.

**QM 302 Forecasting for Business**

Prerequisite: QM 201 and CIS 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. Laboratory fee \$25.

**QM 310 Quality and Operations Management**

Prerequisite: MATH 1xx, MATH 1xy, QM 201, MAN 101, MK 200, AC 202, FIN 214, CIS 202. This course is the second quantitative methods course. Topics to be covered include inventory management including JIT and MRP, statistical quality control, linear programming, optimal scheduling, and facility layout. These topics are presented from the perspective of a quality and continuous improvement paradigm and in the context of the problem-solving model.

3 cr.

**QM 336 Logistics/Physical Distribution**

Prerequisite: MK 200 and QM 201. 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. Laboratory fee \$25.

## SO SOCIOLOGY (School 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, 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 (Formerly SO 311)**

Prerequisite: SO 101. This is an examination of the relative socio-economic 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 American problem of drugs and alcohol and their use and abuse in American society. This course is equivalent to CJ 214.

3 cr.

**SO 216 American Culture and the Black Experience (Formerly SO 314)**

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 235 Domestic Violence (Formerly SO 343)**

Prerequisite: PSY 101 or SOC 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. This course is equivalent to CJ 235.

3 cr.

**SO/CJ 250 Children, Family and the State**

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 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 302 Industrial and Post-Industrial Society (Formerly “Complex Organizations”)**

Prerequisite: SO 101. 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 1970 to present.

3 cr.

### **SO 303 A Sociological Examination of Masculinity**

This course discusses some of the key issues regarding the social construction of masculinity, and what it means to grow up male (the benefits and hazards). The course involves online lectures, assigned readings, viewing popular films, completing assigned homework questions, writing short papers, interacting with other students during class discussion and a final exam.

3 cr.

### **SO 305 The Sociology of Urban Life**

Prerequisite: SO 101. 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 308 Sociology of the Family**

Prerequisite: SO 101. 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. 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**

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 Sociological Theory and Methods**

Prerequisite: SO 101, PSY 207 and junior standing or instructor's permission. This is an in-depth survey of the major sociological theories from the nineteenth 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 325 Introduction to the Mayan World**

Prerequisite: PSY 101 or SO 101 or SO 310 and permission of the instructor. This course directly involves the student in experiencing the Yucatec Mayan world of southern

Mexico. After preparatory lectures and orientation, students spend ten days in the Yucatan on a tour of the Mayan world. Students visit archaeological sites, caves and altars, colonial churches, Spanish towns and cities, native markets, and the Caribbean coast. Students are encouraged to experiment with local foods and language and gain insight into the traditional native American ways of life, history, and custom. May be used as a substitute for an elements of culture requirement "C" course.

3 cr.

### **SO 330 Sociology of Communication**

Prerequisite: PSY 101 or SO 101. 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. 33.

1-3 cr.

### **SO 341 The Sociology of Work**

Prerequisite: SO 101. 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 resumes 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 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." This course is equivalent to CJ 349.

3 cr.

### **SO 360 Advertising, the Media, and Society**

Prerequisite: SO 101. This course focuses on a critical, sociological analysis of the interplay of the media, advertising, and society. It examines issues such as the effects of advertising on self-image and alcohol use, the role of the mass media in society, media ethics, and the role of advertising and the media in politics.

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 412 Research Methods**

#### **(Formerly SO 323 Seminar in Theory and Methods)**

Prerequisite: Junior standing and PSY 207 or MATH 120, and CJ 210 or SO 322. The aim of this course is introduce the student to basic sociological research methods to allow the student to understand and participate in basic quantitative and qualitative research. Each student selects a subject area and conducts as appropriate method of research involving interviews, data collection, measuring, sampling, survey construction, and program evaluation. Each research paper must be properly documented for publication.

3 cr.

### **SO 413 Social Inequality and Justice**

Prerequisite: SO 101 and senior 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** **(School 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.

*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 one-half-hour periods. Offered every spring.

*3 cr.*

### **SPAN 130 Spanish for Criminal Justice**

Prerequisite: Criminal justice major or minor. 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: Social Science major or minor (SO, SW, PSY, or CJ). 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 150 Spanish for Business & Finance**

This introductory course in the Spanish language focuses on the vocabulary and basic grammatical structures needed by students in the fields of business and finance. The course provides students with the opportunity to use their linguistic foundation to develop conversational facility in Spanish. Conversational skills are developed through realistic dialogues and original skits and conversations dealing with topics in business and finance.

*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 year.

3 cr.

**SPAN 333-334 Independent Study in Spanish**

See "Independent Study" on p. 33.

**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.

**SW SOCIAL WORK  
(School 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: 6 credits in PSY, SW and/or SO. 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 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 a 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 Intervention 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 304 Social Work Intervention Methods IV**

Prerequisite: SW 301, 302, 303 and senior SW 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 multi-problem 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 305 The Helping Relationship**

Prerequisite: SW301. Corequisite: SW302. The purpose of this field experience is to enable students to understand how a helping relationship between a client and a social worker develops. Students will have the opportunity to work with two clients to understand the different phases of the intervention process and will use their knowledge to better develop practice skills with a variety of clients.

2 cr.

### **SW 310 Substance Abuse and the Family**

Although this is a 300 level course because of the reading and workload, it is not necessary to have previous social work courses to take this course. Some background in sociology, psychology, or social work is useful, 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 319 Social Work and Research**

Prerequisite: PSY 207 or MATH 120, and junior 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 320 Dynamics of Oppression and Empowerment**

Prerequisite: Junior standing and SO 211. 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. 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 level perspectives. The course helps students continue to develop culturally sensitive social work practice skills and an appreciation of the impact of power 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 409, 410 Field Instruction in Social Work I**

Prerequisite: SW 302, SW 303, and senior SW 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 some 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 SW 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 SW 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 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 practica. The seminar emphasizes ethical issues faced by student interns in their field practicum settings. Students create research proposals for field-based research projects and design and carry out a project related to the impact of diversity issues in their field placements.

*2 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. Students are responsible for carrying out research projects evaluating a component of their field practicum experience and continuing the field practicum project developed in SW 414.

*1 cr.*

## **THTR THEATER (School of Arts and Sciences)**

### **THTR 101 Acting I (Formerly THTR 208)**

This course explores the fundamentals of the craft of Acting using Stanislavski's System. Theater games, character exercises, and scenes from popular, contemporary plays will be performed in class.

*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 220 Improvisational Comedy (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.

*3 cr.*

### **THTR 308 Acting II**

Prerequisite: THTR 101 Designed to further develop a professional approach to monologue and scene study. Style, improvisation, and self-expression will be further explored.

*3 cr.*



## GRADUATE 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 school 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 36-credit graduate program. Normally, the final courses are to be taken at Western New England College, 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 College.
- 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 College. 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, or May 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 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 school. 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 school 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 reason 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 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 Schools 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 College 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 College 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 Division of Graduate Studies and Continuing Education. 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.

## **Undergraduate Student Registration for Graduate-Level Business Courses**

Several regulations, listed below, apply to undergraduate students wishing to register for graduate courses in business:

- A final-semester senior with a minimum cumulative average of 3.0 may elect to take two 500-level courses or two 600 level courses (or one of each). The graduate courses may be taken for graduate credit providing they do not exceed the normal load of five courses.
- Courses at the 500 level are not open to undergraduates who have completed the corresponding undergraduate course.
- The student must complete all undergraduate requirements in the semester in which the graduate courses are taken. 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 assistant dean in the appropriate school.

## GRADUATE PROGRAMS IN ARTS AND SCIENCES

### Master of Education in Elementary Education

The College offers a Master of Education in Elementary Education (MEEE) Program. Fully accredited by the Massachusetts Department of Education, this program allows students to obtain a master's degree for the Professional License in the elementary field. The program offers students content course work in the areas of computer technology, English, history, mathematics, and science. In addition, there is education course work 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 twenty-first 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 the fall, winter, and spring eleven-week terms. Two courses are offered each 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 ten 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 ten courses (30 credit hours). In addition to having an Initial License for elementary teaching, students will need to have attained an overall grade point average of 2.8 in their undergraduate work to become a degree candidate.

ENGL 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 primarily for elementary teachers who hold an Initial License in the field. Non-degree 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; by helping professionals develop standards based curricula and assessment, it addresses the needs of the classroom teacher.

### **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 ten courses (30 credit hours) from among the courses according to their needs. A Capstone seminar is also required.

MAET 550	Standards Based Planning and Assessment in the English Curriculum
MAET 552	Advanced Grammar
MAET 553	Teaching Writing in the English Curriculum
MAET 554	Applied Rhetoric
MAET 556	The Reading Process in the English Curriculum
MAET 560	Shakespeare and the Elizabethan Age
MAET 561	Poetry
MAET 562	Epic, Myth and Fable
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 ten 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 and secondary school mathematics teachers, but it is also available to all teachers with an interest in further study in mathematics and to individuals seeking a career change to teaching. 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 will be structured and taught with a vision of the mathematics scholar-teacher in the 21st century. Students who complete this program of study will be able to demonstrate all of the following standards:

#### Learning Mathematical Ideas:

- Become independent learners, capable of doing and learning mathematics on their own;
- Develop their own processes, concepts, and techniques for solving problems;
- Exercise mathematical reasoning through recognizing patterns, making and refining conjectures and definitions, and constructing logical arguments, both formal and heuristic, to justify results.

#### Connecting Mathematical Ideas:

- Develop an understanding of the interrelationships within mathematics and an appreciation of its unity;

- Explore the connections that exist between mathematics and other disciplines;
- Apply mathematics learned in one context to the solution of problems in other contexts.

#### Communicating Mathematical Ideas:

- Develop skills in both written and oral communication of mathematical concepts and technical information;
- Learn to communicate effectively at various levels of formality and with people who have differing levels of mathematical insight;
- Understand and appreciate the power of mathematical language and symbolism in the development of mathematical concepts.

#### Building Mathematical Models:

- Work with a given model;
- Recognize constraints inherent in a given model;
- Construct models to analyze real-world settings and use symbols and reasoning in analysis.

#### Using Technology:

- Use calculators and computers as tools to represent mathematical ideas and construct different representations of mathematical concepts;
- Use calculators and computers to engender a broad array of mathematical modes of thinking through use of powerful computing tools;
- Use calculators and computers to develop and use alternate strategies for solving problems.

#### Developing Perspectives:

- Experience and explore the dynamic nature of mathematics and its increasingly significant role in social, cultural, and economic development;
- Develop an appreciation of the contributions made by various cultures to the growth and development of mathematical ideas;

- Investigate the contributions made by individuals, both female and male, and from a variety of cultures, in the development of ancient, modern, and current mathematical topics;
- Gain an understanding of the historical development of major school mathematical concepts typically encountered in K-12 education.

## Structure

The program is a part-time graduate program with courses offered in the fall, winter, spring, and summer eleven-week terms. Two mathematics courses will be 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 ten courses, and can thus be achieved in a minimum of five eleven-week terms. In the spirit of collaborative learning the program will try to admit a cohort group every two years, whose intention would be to finish within that period (with summer term optional). 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 the degree, if they so desire. A typical program would be fall, winter, spring, fall, and winter.

## MAMT Requirements

The program requires ten courses (30 credit hours), at least seven of which must be mathematics courses and at most three of which can be education courses. Students will be required to have an overall GPA of 3.00 or better to become a degree candidate.

### Mathematics:

- MAMT 548 What is Mathematics?
- MAMT 549 Creative Problem Solving
- MAMT 551 Chance
- MAMT 550 Discrete Mathematics
- MAMT 552 Geometry Revisited
- MAMT 554 Number Theory
- MAMT 556 Graph Theory and Combinatorics

- MAMT 558 Probability and Statistics
- MAMT 560 History of Mathematics
- MAMT 562 Linear and Matrix Algebra
- MAMT 564 Analysis
- MAMT 566 Algebraic Structures
- MAMT 568 Mathematical Modeling
- MAMT 590 Special Topics in Mathematics
- ED 510 Educational Research
- ED 515 Assessment, Theories, Strategies and Design
- ED 520 Administrative Skills and Mentoring
- ED 530 Philosophy of Education

## 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. The majority of graduate courses are offered in the evening and are taught by the graduate faculty in the School of Business. The graduate faculty is appointed from the full-time faculty of the school.

Study in the graduate business program will lead to either the Master of Business Administration (MBA) or Master of Science in Accounting (MSA) degree. There is a special dual JD/MBA degree option for students who have been accepted to the Western New England College School of Law. Also offered is a certificate program for graduate study in management.

The School of Business is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. Western New England College is the *only* private, AACSB accredited college in western Massachusetts. This achievement places the School of Business in the elite company of accredited business schools, which comprise 15 percent 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 multi-year review.

## 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.

### Goals and Objectives

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 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 by demonstrating an ability to identify problems and opportunities generate alternative solutions, and make decisions.

### Leadership skills and Management Skills:

apply a variety of organizing, planning, controlling, and communicating skills necessary to demonstrate effective management and leadership of organizations in dynamic environments.

### Environmental Analysis:

demonstrate an understanding of the dynamic internal and external elements of the environment that affect operational, tactical, and strategic business decisions.

### Ethics and Social Responsibility:

demonstrate an awareness of ethical considerations in the conduct of business and a greater appreciation of the importance of business ethics and social responsibility in the decision-making process.

### AACSB International Accreditation

Western New England College is the only private AACSB accredited college in western Massachusetts and just one of two institutions in the area. Western New England College joins elite company as one of AACSB International accredited business programs, just 15 percent of business programs worldwide are AACSB accredited.

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 multi-year review.

### Admissions Standard

As an AACSB International accredited program, the School of Business requires all applicants to satisfy specific core business knowledge requirements within one term, or three 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, PowerPoint, and Excel) 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 within four (4) years of entry into a graduate business program with “B” or better grades in relevant core coursework.
- Completion of relevant undergraduate coursework within the last four (4) years from an accredited college in the following areas with an earned grade of “B” or better:
- Accounting: financial reporting
- Finance: introduction to finance
- Quantitative Methods: introduction to statistics
- Economics: introduction to micro economics

- For Excel skills, ongoing and extensive use of spreadsheets in current occupation or career.
- Successfully passing a waiver exam or CLEP test in accounting, finance, quantitative methods, economics or excel skills.
- Completion of the Core Knowledge Self Study modules available at Western New England College.

Applicants may elect to complete a program of Manhattan Virtual Classroom assisted 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 core knowledge 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 School of Business.

Applicants may enroll in the self study modules at any time during the year. The modules are designed to be completed in six weeks of consistent study. While students may complete the modules at a pace that best fits their schedule, individual module study must be completed within eleven weeks of initial registration. All core knowledge modules must be completed within one term, or three months following admission to the MBA program.

### Core Knowledge Self Study Modules:

Excel Skills: Basic and moderate level of excel skills

BUS 501	Accounting Principles Equivalent of AC201— Financial Reporting
BUS 502	Finance Principles Equivalent of FIN 214— Introduction to Finance
BUS 503	Quantitative Methods Principles Equivalent of QM 201—Intro to Business Statistics
BUS 504	Economic Principles Equivalent of EC 206—Micro- economic Principles

### **MBA Program Structure**

The MBA degree is earned after 37 credit hours of study comprised of foundation, elective and integrative coursework. Each area of coursework requires the following:

Foundation requirements: 27 credit hours

Elective requirements: 6 credit hours

Integrative requirements: 4 credit hours

Innovative course delivery is a characteristic of the School of Business Graduate Programs. Students will have the opportunity to take courses in a hybrid 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 College. 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 one (1) graduate business course as a non-degree student, and work on satisfying the pre-requisite coursework concurrently. Such students may select from one of the following courses: BUS 605, MAN 600 or BUS 610.

Students who meet the admission standards for entry into the MBA program but have not completed the core knowledge requirement will be admitted under Provisional Status. Provisional Status will allow students to take one (1) additional course (for a total of two courses) from those listed above and must complete all remaining core knowledge requirements. If core knowledge requirements are not completed within one term or three months following admission to the program, students may not continue to take any additional 600 level courses until the core

There is an option for students currently enrolled, or accepted to, the Western New England College 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 School of Business Dean's Office for specific information.

### **Foundation Course Requirements**

#### **27 credit hours**

Completion of the following nine (9) courses is required:

BUS 605	Problem Solving: Transformation and Innovation
MAN 600	Team Leadership
BUS 610	Business and Its Environment
AC 630	Accounting for Decision Makers
CIS 610	Information Technology Management and Applications
FIN 630	Managerial Finance
QM 610	Decision Support Models
MAN 610	Organizational Behavior and Theory
MK 640	Marketing Management

Each course is three (3) credits. The courses should be completed in the order listed.

### **Elective Course Requirements**

#### **6 credit hours**

Students may choose 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, computer information systems, finance, general business, management, and marketing. While description of elective course offerings are provided in this catalog, special topics courses are offered frequently to address important management issues of the day. 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. Most electives do have foundation coursework as a pre-requisite to enrollment.

### **Integrative Course Requirements**

#### **4 credit hours**

Study in the MBA program culminates with integrative study and experience. The last two courses in the program are designed to integrate the knowledge learned in the foundation coursework to enhance student understanding of management practice. Further, students have the opportunity to demonstrate their understanding of concepts learned throughout the MBA program by participating in a consulting practicum designed to solve management problems in area businesses. Integrative coursework includes:

BUS 680	Strategic Management	3 credits
BUS 685	Consulting Practicum	1 credit

## Master of Science in Accounting (MSA)

### Purpose

The Masters 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. The program provides students with a challenging academic environment that extends and refines their knowledge of business and accounting through study, experiential exercises and assessment performance. Graduates of this program satisfy the requirements to sit for the CPA exam in Connecticut and Massachusetts. Students taking the CPA exam in other jurisdictions must check the requirements of the respective jurisdiction.

### Program Objectives

Students will be able to:

Describe and analyze ethical perceptions and frameworks for responding to ethical dilemmas faced by accounting professionals.

Assess the implications of internal and external forces on accounting choices.

Identify and analyze the implications of accounting information to financial markets and other users.

Evaluate alternative courses of action in business settings, and use accounting and other related information in making decisions and solving problems.

Develop and clearly communicate (both in writing and orally) a perspective, with appropriate reference to supporting materials in accounting and other related areas.

### Admissions Standards

See p. 18 for graduate admissions requirements.

### Academic Performance

The academic standards discussed on p. 265 apply to students in the MSA Program with the following two exceptions:

In addition to the requirement of a minimum grade point average of 3.0 in all courses applied toward the degree, students in the MSA program must also obtain a minimum grade point average of 3.0 for all graduate accounting classes in the program.

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 core courses, foundation courses, and other business courses. These three areas are discussed below.

#### Undergraduate Core Courses 24 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 core 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 all or some of the undergraduate core courses can be admitted into the program but after admission all remaining undergraduate core courses must be completed within four years with no grade below a “B.” Any remaining undergraduate core courses must be taken at Western New England College. Relevant prerequisites must be satisfied for all upper level graduate courses before the student is eligible to take them. Grades on the undergraduate core courses taken after

being admitted into 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 the graduate courses taken.

### **Foundation Courses**

#### **21 credit hours**

AC 607	Ethics in the Accounting Profession
AC 610	Cost-Based Decision Making
AC 611	Municipal and Fund Accounting
AC 614	Advanced Topics in Taxation
AC 620	Advanced Topics in Auditing
AC 622	Accounting Theory and Contemporary Issues
FIN 630	Managerial Finance

### **Other Business Courses**

#### **9 - 12 credit hours**

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. Students who did not complete an undergraduate course in advanced financial accounting must include AC 621 as one of their three courses.

Students who have not earned 24 undergraduate credit hours in non-accounting business courses are required to complete AC 621 and four non-accounting graduate business courses (15 credit hours).

## **Juris Doctor/Master of Business Administration**

The Schools of Business and Law at Western New England College 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, seven (7) credits of law coursework can be applied toward the 37 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 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 School of Business and the JD program through the School of Law. Those interested in this degree option should contact the School of Law Admission Office and School of Business Dean's office for specific information on application for admissions.

## **Five-year Bachelor/MBA Program**

This program allows undergraduate students in the School of Business to accelerate the completion of both the bachelors and masters degrees in business. Students can earn the popular and valuable Master of Business Administration degree with just one additional year of study.

Students will earn both BSBA and MBA degrees within five years of entry as an undergraduate. Undergraduate study in business will satisfy all pre-requisite coursework requirements for the MBA program. See page 270 for program outline.

### **Program Application and Admission Requirements:**

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

1. maintain a 3.0 or higher GPA in each year of their undergraduate studies. It is important to note that this is not an overall GPA of 3.0 for their college career.
2. complete the School of Business Graduate Studies application, essays, and recommendation forms for the MBA program by July 1<sup>st</sup> after completing their junior year of undergraduate study. All application materials should be submitted to the Graduate Studies program in the School of Business located in Churchill Hall.

3. Forward scores for the Graduate Management Admission Test (GMAT) by the July 1<sup>st</sup> application deadline listed above. Students should score 450 or higher on the GMAT.

Applicants will be notified of their acceptance into the program by August 1<sup>st</sup> and begin taking graduate courses in the Fall term.

Students who have achieved a high level of success in their high school academic performance may apply for conditional early acceptance into the program as Freshmen. To qualify for this opportunity, applicants must have earned a GPA of 3.5 or higher, and a 1200 or higher SAT score. Once admitted, students must maintain a college GPA of 3.3 or higher in each year of their undergraduate studies. Applicants who attain this conditional acceptance will not have to re-apply to the graduate program, or take the GMAT.

Applicants qualifying for early acceptance will automatically qualify for graduate internship courses and business consulting opportunities through the Law and Business Center for Advancing Entrepreneurship. The program schedule is as follows:

## **CERTIFICATE PROGRAM FOR GRADUATE STUDY IN MANAGEMENT**

This program is intended for college graduates in any major who wish to study management at the graduate level. Flexible curriculum options make this certificate equally appropriate for MBA-holders who need to update or augment their knowledge of management theory and technique, or for students who have few or no previous management courses.

The curriculum consists of six 600-level graduate courses (18 credit hours) from the management department chosen by the student with the concurrence of an advisor.

Only courses completed within three and one-half years of the certificate completion date may be counted toward the requirements.

Requirements for admission are a graduate degree or an undergraduate degree with a cumulative grade point average of at least 2.5 or permission of the assistant dean of the School of Business. Official transcripts are required.

Further information and the application are available from the Division of Graduate Studies and Continuing Education.

Courses may be taken in any order as long as prerequisites are met. A suggested program of study is:

MAN 600  
MAN 610  
MAN 630  
MAN 631  
MAN 651  
MAN 6xx

## GRADUATE PROGRAMS IN ENGINEERING

The Master of Science Program provides specialization in electrical engineering, engineering management, and mechanical engineering. At the graduate level, programs of study become less structured and more specialized. Although it is possible to earn a degree strictly on the basis of coursework alone, students with research interests in the MSME, MSEE, or MSEM program may undertake a six credit hour thesis project. Students in the MSE program are required to complete a three credit hour practice oriented 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 School of Engineering faculty member nominated by the student and approved by the dean of the School of Engineering. Incoming students seeking the degree are urged to discuss their proposed concentration area with faculty members in that area with a view toward selecting an advisor later in the semester.

### Degree Requirements

The master of science program requires 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. Courses are offered in the evening.

### Thesis Option (MSEE, MSME, MSEM) -Minimum Curriculum Requirements

The curriculum for the master of science program, thesis option, requires a minimum of 24 credit hours of course work and six hours of thesis. The student is admitted to candidacy after satisfactory completion of 6 hours of graduate course work 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 (MSEE, MSME, MSEM)—Minimum Curriculum Requirements

The curriculum for the master of science program, non-thesis option, requires a minimum of 30 credit hours of graduate course work. Students are admitted to candidacy as soon as possible after satisfactory completion of 6 hours of course work, maintaining a "B" average or better. A

final comprehensive examination is required in the MSME and MSEE programs, which covers all course work completed by the student for the degree. The MSEM program requires an exit interview as part of the assessment of student learning in the program. The course distribution is:

### Practice Oriented Project (MSE) -Minimum Curriculum Requirements

The curriculum for the master of science program (MSE) requires a minimum of 30 credit hours of graduate course work. Students are admitted to candidacy as soon as possible after satisfactory completion of six hours of course work, maintaining a "B" average or better. A three credit hour practice oriented 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 College 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 New England's practicing engineers. The program places emphasis on engineering practice and is ideally suited for individuals who desire broader graduate experience but cannot be away from work full-time.

### 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 School of Engineering. Students may elect to complete one of two course patterns; 1) core courses, courses constituting a concentration area, and a practice oriented project; or 2) core courses, elective courses and a practice oriented project.

**Concentration Option Requirements**

Core Courses	12 credit hours
Concentration Area	12 credit hours
Elective Course	3 credit hours
Practive Oriented Project	3 credit hours
Total	30

**Non-Concentration Option Requirements**

Core Courses	12 credit hours
Elective Courses	15 credit hours
Oractice Oriented Project	3 credit hours
Total	30

**Core Course Requirements**

	Credit Hours
EE 525 Linear Systems Theory	3
EMGT 690 Engineering Materials (Special Topics)	3
EMGT 648 Project Management	3
EMGT 605 Engineering Management	3
Total	12

**Approved electives**

Students in the MSE program may select any graduate level engineering courses approved by the master candidate's advisor.

**Master of Science in Electrical Engineering (MSEE)**

High technology industries are an important sector of the economy, particularly in the Northeast. The MSEE program provides an engineering science-intensive approach to increase student's understanding and problem solving abilities. Concentrations are offered in electrical and computer engineering. In addition, core courses are provided that focus on mathematical analysis, signal and system theory, microcomputers, software engineering, and solid-state electronic devices.

**Entrance Requirements**

The MSEE program requires a baccalaureate degree in engineering, or a closely related field, from an accredited college or university. Those seeking admission without such a degree may petition to have professional experience accepted as a substitute and show satisfactory progress in the first nine hours of course work, maintaining a "B" average or better. Students with the appropriate technical degree are admitted to candidacy as soon as

possible after satisfactory completion of six hours of course work, maintaining a "B" average or better.

**Thesis Option- Minimum Curriculum Requirements**

The curriculum for the MSEE program, thesis option, requires a minimum of 24 credit hours of course work and six hours of thesis. The student is admitted to candidacy after satisfactory completion of 6 hours of graduate course work 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.

The course distribution is:

600 level MSEE Courses- 12 credit hours minimum

500 level MSEE Concentration Electives-12 credit hours maximum

Thesis- 6 credit hours

Total- 30 credit hours

**Non-thesis Option- Minimum Curriculum Requirements**

The curriculum for the MSEE program, non-thesis option, requires a minimum of 30 credit hours of graduate course work. Students are admitted to candidacy as soon as possible after satisfactory completion of 6 hours of course work, maintaining a "B" average or better. A final comprehensive examination is required in the MSEE program, which covers all course work completed by the student for the degree.

The course distribution is:

600 level MSEE Courses- 15 credit hours minimum

500 level MSEE Concentration Electives- 15 credit hours maximum

Total- 30 credit hours

Courses numbered at the “6xx” level are generally for upper level graduate students (15 credit hours completed or more). However, qualified lower level graduate students (12 credit hours completed or less) may also take 6xx level courses. Courses numbered at the “5xx” level are generally for lower level graduate students. The “5xx” courses also serve as foundation courses for those graduate students that require a stronger foundation in a subject area before proceeding to take 6xx level courses. Course registration 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. By choosing appropriately, students can focus on a particular area of specialization.

These areas include:

Systems and Controls  
Analog Circuit Design  
Digital Signal Processing  
Semiconductor devices  
Wireless  
Power electronics  
Software Design  
VHDL / VLSI  
Embedded systems  
Communications

Students must select one of two concentration areas listed below. Elective courses and thesis topics are selected in consultation with the master’s candidate advisor.

## Electrical Concentration

Upper level graduate students (or lower level graduate students with their advisor’s approval) select from the following courses:

EE 601 Advanced Engineering Analysis  
EE 611 Digital Communications Systems  
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 630 Advanced VLSI Design  
EE 650 Advanced Digital Signal Processing  
EE 667 Advanced Electrical Materials  
EE 670 Optimal Control Systems  
EE 680 Pattern Recognition  
EE 690 Special Topics in Electrical Engineering

Lower level graduate students (or upper level graduate students with their advisor’s approval) select from the following courses:

EE 511 Random Signals and Noise  
EE 514 Microwave Engineering  
EE 516 Electromagnetic Compatibility  
EE 520 Image Processing  
EE 523 Communications  
EE 525 Linear Systems Theory  
EE 528 Design of Analog CMOS Integrated Circuits  
EE 530 VLSI Design  
EE 531 Semiconductor Device Modeling for VLSI  
EE 535 Fuzzy Logic  
EE 545 Neural Networks  
EE 550 Power Electronics  
EE 555 RF and Microwave Wireless Systems  
EE 556 RF and Microwave Active Circuit Design  
EE 557 Wave Transmission and Reception  
EE 570 Computer Controlled Systems  
EE 580 Signal Processing

## Computer Concentration

Upper level graduate students (or lower level graduate students with advisor’s approval) select from the following courses:

CPE 501 Probabilistic Methods  
or  
EE 501 Advanced Electrical Engineering Analysis  
CPE 620 Advanced Computer Architecture  
CPE 625 Advanced Software Engineering  
CPE 635 Advanced Requirements Analysis  
CPE 642 Verification and validation.  
CPE 645 Embedded Software Systems  
CPE 655 Computer Network Architecture  
CPE 662 Advanced Digital Circuits  
CPE 670 Speech Signal Processing  
CPE 675 Advanced Operating Systems  
CPE 680 Distributed Processing

Lower level graduate students (or upper level graduate students with their advisor's approval) select from the following courses:

CPE 525	Software Engineering
CPE 545	Computer Graphics Software
CPE 562	VHDL
CPE 575	Operating Systems
CPE 585	Computer Networks

### **Embedded Systems Concentration**

Upper level graduate students (or lower level graduate students with their advisor's approval) select from the following courses:

CPE 620	Advanced Computer Architecture
CPE 625	Advanced Software Engineering
CPE 635	Advanced Requirements Analysis
CPE 640	Systems Modeling and Analysis
CPE 642	Verification and validation.
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 662	Advanced Digital Circuits
CPE 670	Speech Signal Processing
CPE 676	Precise Modeling of software systems
CPE 678	Secure Software Design
CPE 690	Special Topics

Lower level graduate students (or upper level graduate students with their advisor's approval) select from the following courses:

CPE 601	Probabilistic Methods for Digital Systems
CPE 535	Requirements Analysis
CPE 538	Software Quality Assurance
CPE 542	Verification and validation.
CPE 545	Computer Graphics Software
CPE 562	VHDL
CPE 575	Operating Systems
CPE 585	Computer Networks

### **Approved Electives**

Students in the MSEE program may select elective from CPE or EE courses in the concentration areas and other CPE, EE, EMGT, and ME courses at the 500 and 600 levels approved by the master candidate's advisor.

## **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 MS in Engineering Management program addresses this need by including core courses in engineering administration, project management, statistical methods for quality assurance, and the economic aspects of engineering decisions.

### **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;
- be better prepared able to manage and implement change within their organization;
- have expanded their technical management skills while maintaining full-time employment status.

### **Core Courses**

EMGT 605	Engineering Management
EMGT 609	Engineering Cost Analysis
EMGT 615	Statistical Quality Control
EMGT 648	Project Management

Program concentrations: In addition to the required core courses above, students can expand their technical knowledge in keeping with their interest and professional needs by either selecting a general concentration, a concentration in production and manufacturing systems, a concentration in quality engineering, or a concentration in computer and engineering information systems.

### **General Concentration**

Engineering Electives—nine credit hours minimum\*

Electives—nine credit hours maximum

### **Production and Manufacturing Systems Concentration**

- EMGT 622 Production Management and a minimum of two of the following engineering courses
- 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
- ME 640 Materials Selection for Engineering Design and Manufacturing
- ME 654 Computer Control of Manufacturing

Electives—nine credit hours maximum\*\*

### **Quality Engineering Concentration**

- EMGT 607 Quality Management
- EMGT 643 Design of Experiments
- EMGT 644 Quality Systems and Process Improvement

Electives—nine credit hours maximum\*\*

### **Computer and Engineering Information Systems Concentration**

- (CIS 610 Information Technology Management and Applications and a minimum of two of the following courses)
- EMGT 624 Engineering Management Information Systems
- EMGT 626 Computer Simulation of Engineering/Business
- ME 649 Advanced Computer-Aided Engineering
- ME 654 Computer Control of Manufacturing

Electives—nine credit hours of the following courses or other graduate courses approved in consultation with the master candidate's advisor.

- CIS 665 Issues in Data Communication

- CIS 671 Management Support Systems
- CIS 675 Database Management
- CIS 677 Systems Analysis, Modeling and Design
- CPE 525 Software Engineering
- CPE 545 Computer Graphics Software

*\*Any engineering management or other engineering graduate-level course approved by the master candidate's advisor.*

*\*\*Any graduate-level course approved by the master candidate's advisor.*

## Master of Science in Mechanical Engineering (MSME)

**Please note: The MSME Program will not be admitting any new students after January 1, 2006.**

This program has been designed to meet the needs of both the practicing professional and the person planning further graduate study. The tremendous impact of computers on mechanical engineering has created a need for advanced training that blends the computational aspects of engineering science with current applications in computer-assisted engineering, CAD and CAM.

### Course Requirements

In addition to six required core courses selected from the following list, students must take four additional graduate level elective courses, a minimum of two of which must be from engineering..

#### Core Courses

ME 610	Measurement Systems
ME 510	Advanced Mechanical Engineering Application Techniques
ME 519	Experimental and Analytical Stress Analysis
ME 542	Computer Aided Engineering or
ME 544	Computer Applications in Mechanical Engineering

#### Mechanical Engineering Concentration Courses

(Select a minimum of three courses)

ME 620	Experimental and Computational Methods in Vibrations
ME 630	Advanced Heat Transfer
ME 635	Design of Alternative Energy Systems
ME 640	Materials Selection for Engineering Design and Manufacturing
ME 646	Applied Finite Element Analysis
ME 654	Computer Control of Manufacturing
ME 660	Noise Control and Engineering Acoustic

## Mechanical Engineering Approved Electives

ME 526 Gas Dynamics

ME 551 Applied Computational Fluid Design

Any graduate-level course approved by the master's candidate's advisor.

## GRADUATE ENGINEERING CERTIFICATE PROGRAMS

Students may complete a four-course sequence in one of the following areas:

- Computer Engineering
- Electrical Engineering
- Engineering Management
- Mechanical Engineering

For information on specific certificates, contact the Division of Graduate Studies & Continuing Education.

## DIVISION OF GRADUATE STUDIES AND CONTINUING EDUCATION

Douglas L. Kenyon  
Assistant Vice President

Ida B. Wilcox  
Regional Director

David King  
Associate Director

Judy Cadden  
Assistant Director for Graduate Student  
Services

Lisa M. Vachon  
Assistant Director for Undergraduate Student  
Services

Western New England College has a long tradition of providing continuing education for students who need part-time and evening study, those who are older than 18- to 22-year old full-time students, and those who are returning to higher education after time spent in other pursuits.

Part-time students may be admitted into the Master's Degree programs offered by the School of Arts and Sciences, the School of Business, and the School of Engineering.

## GRADUATE NON-DEGREE OPTIONS

### Certificate Programs:

Western New England College makes certificate programs available to those who do not wish a degree, but seek specialized training beyond a few courses. Programs are intended for college graduates who wish to enhance their career prospects and/or education. Further information on admission and program options may be obtained from the appropriate school or the Division of Graduate Studies and Continuing Education. Graduate Certificates are available in Management (see p. 275) and Engineering (see p. 282).

## SCHOOL OF LAW

Arthur R. Gaudio  
Dean

Eric J. Gouvin  
Associate Dean

For more than three-quarters of a century, Western New England College 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 and with membership in 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 6,000 alumni who live and practice in 49 states and several U.S. territories.

For admissions information, contact the School of Law at 413-782-1406 or 800-782-6665 or at [www1.law.wnec.edu](http://www1.law.wnec.edu).

## **Juris Doctor/Master of Business Administration (JD/MBA) Degree**

After completing one year of the Juris Doctorate program, students may simultaneously complete the requirements of the Juris Doctor from Western New England College School of Law and a Master of Business Administration from Western New England College School of Business. Nine 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 School of Business and the JD Program through the School of Law.



## GRADUATE COURSES

Courses are listed alphabetically by prefix.

In the graduate engineering programs, the 500-level courses are open to both undergraduates who have met the course prerequisites and graduate students who have not taken the equivalent as part of their undergraduate program of study. Courses numbered 600 and above are open only to 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 waivers. 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: Enrollment in Masters Program. 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

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 MA 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

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. Student will be assessed by examinations and written assignments.

3 cr.

##### ED 530 Philosophy of Education

Prerequisite: Enrollment in Masters Program. 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 or senior with permission of instructor. 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**

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: Two semester of laboratory science. Open only to students in MEEE program. This course examines the principal 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.

**HIST 520 Documents of World History**

Prerequisite: Graduate standing or seniors with instructor's permission. This course will explore in depth the topics in world 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.

**English**

**MAET 550-559 Fundamental Studies**

**MAET 550 Standards Based Planning And Assessment In The English Curriculum**

This course presents an overview of current pedagogy in the English language arts classroom. It is a practical course intended to help teachers or prospective teachers of secondary English understand how to become skillful in the implementation of curriculum. Topics that are covered include: What are standards? How are they important in shaping curriculum? What does a standards-based lesson look like? How does assessment inform instruction? What are the rubrics and why are they needed? What does the MCAS assess and how does it affect what and how we teach? What is the scope and sequence and how does it affect long-range planning? What is curriculum mapping and why do it?

3 cr.

**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 562 Literary Studies - Epic, Myth, and Fable**

This course includes close readings of significant examples of these three genres and discusses how these materials act as sources for references and allusions in other forms of writing. Students consider the purposes fulfilled by these narratives in world cultures and analyze innovations and common conventions used in these genres.

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 twentieth 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 eighteenth 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.

**Mathematics****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 549 Creative Problem Solving in Mathematics**

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 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 551 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 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 cancel clusters. To understand these topics fully, students will be learning aspects of graphical descriptive statistics, confidence intervals, probability, measure of central tendency and dispersion, basic combinatorics, hypotheses testing, conditional probability, sampling, correlation, linear regression, and more.

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 congruencies, will be covered, along with such topics as 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 and Combinatorics**

This course is a study of structures such as nets of polyhedra and, more generally, graphs and digraphs. Fundamental concepts include paths, cycles, trees, connectivity, matchings, networks, tournaments, planarity, Hamiltonian graphs, eulerian graphs, and graph colorings. The course also includes combinatorial applications of graph theory such as the use of fundamental counting principles, recurrence relations, and combinatorial algorithms.

3 cr.

**MAMT 558 Probability and Statistics**

This course introduces probabilistic and statistical thinking in applied settings, with the goal of enabling students to use such thinking in their everyday lives. Topics 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 calculator will be used.

3 cr.

**MAMT 560 History of Mathematics**

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 562 Linear and Matrix Algebra**

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 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 562 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 590 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.*

## **Graduate Courses In Business**

### **Accounting**

#### **AC 607 Ethics in the Accounting Profession**

Prerequisites: AC 201 or its equivalent. This course has two focuses: (1) the knowledge and skills needed to deal with specific ethical issues that frequently confront accounting professionals, and (2) an examination of issues associated with factors that affect accountants' professionalism and success. A discussion of approaches to dealing with interpersonal workplace situations in professional environments will enable students to reflect on and clarify their own value systems with respect to the resolution of ethical and work/life balance dilemmas. A panel discussion featuring practicing public accountants of differing experience levels serves to highlight and underscore the importance of the areas examined. Key outcomes include the ability to articulate ethical problems, to identify stakeholders, and to produce reasoned personal decisions about ethical and professional courses of action.

*3 cr.*

#### **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. Recent practitioner journal articles, cases, and CPA and CMA examination questions are used.

*3 cr.*

#### **AC 611 Municipal and Fund Accounting**

Prerequisites: AC 201 or its equivalent. This course examines accounting concepts for non-profit organizations. Key outputs 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 614 Advanced Topics in Taxation**

Prerequisite: AC 413 or its equivalent. This course examines advanced issues of taxation. Key outputs 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**

Prerequisite: AC 419 or its equivalent. This course examines the statements on auditing standards issued by the AICPA. Key outputs 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 621 Advanced Financial Accounting**

Prerequisite: AC 306 or permission of instructor. This course expands on the accounting concepts covered in intermediate financial reporting classes. The focus is on accounting principles and practices related to business combinations as well as foreign-currency denominated transactions. Key outcomes include the ability to report inter-corporate investments, business combinations, consolidated financial statements, intercompany transfer of assets, and foreign currency transactions.

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. CPA theory examinations are studied. Key outputs 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. 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 outputs 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.

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 under a graduate faculty member's guidance with the approval of the department chair and the assistant dean. 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 680 Accounting Internship**

Prerequisite: Two graduate level accounting courses. The accounting internship is an opportunity for students to apply high level 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.

**Business****BUS 501 Accounting Principles**

This 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.

2 cr.

### **BUS 502 Finance Principles**

This 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.

2 cr.

### **BUS 503 Quantitative Methods Principles**

This 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, clustered and stacked bar charts. The numerical tools covered are measures of central tendency (mean, median, 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.

2 cr.

### **BUS 504 Economics Principles**

This 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 course work in the Master of Business Administration program.

2 cr.

### **BUS 511 Accounting Principles**

This course introduces the MBA student to the financial accounting world consisting of transaction analysis, financial statement preparation, and financial statement account analysis. Topics include an introduction to transactions and statement preparation, inventories, cash and internal controls,

receivables, long-lived assets, liabilities, and equity.

2 cr.

### **BUS 512 Principles of Finance**

This course introduces the MBA student to the broad financial world consisting of financial management, financial markets, and investments. Topics include an introduction to financial planning, the time value of money, the valuation of securities and projects, and financial statement analysis with cash flows and taxes.

2 cr.

### **BUS 605 Problem Solving: Transformation and Innovation**

Prerequisite: Graduate Standing. 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. 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 650 The Changing Social, Political, Ethical and Legal Environment of Business**

This course examines business in its relation to ethics, social responsibility, public policy, legal and regulatory issues, and the global and domestic marketplace. It focuses on the dynamics of leadership and influence that will

be required of the effective manager in today's organizational/business environment. Demographic trends and the many diversities developing in the pluralism of the 21st century will serve as the backdrop for this study.

4 cr

### **BUS 680 Strategic Management**

Prerequisite: AC 630, CIS 610, FIN 630, MAN 600, MAN 610, MK 640, QM 610. 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 Consulting Practicum**

Pre-requisites: CIS 610, FIN 630, MAN 610, MK 640, QM 610. This is an applications course where students demonstrate the competencies developed in the MBA program by solving business problems for area businesses. Working in teams, students act as independent consultants to their client company. The objective of this course is to have student organize an effective team to generate problem solutions, and, draw upon their learned business knowledge in developing these solutions.

1 cr

### **BUS 694 Ethics and Professionalism**

This course focuses on the knowledge and skills needed deal with difficult ethical issues that frequently confront business managers and professionals. An examination of the conflicts involved in recent corporate scandals will enable students to reflect on and clarify their own value systems with respect to the resolution of ethical dilemmas. Key outcomes include the ability to articulate ethical problems, to identify stakeholders, and to produce reasoned personal decisions about ethical courses of action.

3 cr

## **Computer Information Systems**

### **CIS 610 Information Technology Management and Applications**

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

### **CIS 648 Computer Auditing, Security and Control**

Prerequisite: CIS 610. This course addresses the need for various security controls within the information center. Both automated and manual control techniques currently in use in the industry are discussed. The course also explores the suitability of new technologies such as expert systems as audit tools. The recent trends in the computer security field are addressed. Students with an undergraduate CIS major cannot receive graduate credit for this course.

3 cr

### **CIS 665 Issues in Data Communications**

Prerequisite: CIS 610. This course will investigate managerial aspects of communications systems, focusing on the relationship of communications technologies to the whole organization. Sub-themes will include the relationships of communications technology with information systems, the regulatory environment, and the effects of communications technologies on people.

3 cr

### **CIS 671 Management Support Systems**

Prerequisite: QM 610. This course is an introduction to quantitative modeling and analysis. Model building from the managerial perspective is discussed along with the use of general-and-special-purpose computer software (spreadsheet and Management Science programs). Topics are selected from forecasting, decision theory, linear programming, network modeling, CPM/PERT, simulation, inventory control, queuing systems. Emphasis is on the use of these models in managerial decision-making.

3 cr. Laboratory fee \$30.

**CIS 675 Database Management**

Prerequisite: CIS 610. This course is an exploration of concepts, principles, issues and techniques for managing organizational data using database management systems. Topics include database architecture, data models with emphasis on relational model, logical database design, relational query languages, normalization, and database administration issues. Emphasis is on the managerial and strategic impact of databases. Two projects are required.

3 cr.

**CIS 677 Systems Analysis, Modeling and Design**

Prerequisite: CIS 610. This course is an introduction to the tools and techniques of system analysis and design and project management within the general framework of the System Development Life Cycle. Topics covered include modeling system logic, business processes, data flows, and relationships. Corresponding tools would include decision tables, Process Diagrams, Data Flow Diagrams, Entity Relationship Diagrams, and CASE. Other topics will be selected from project management and project scheduling tools and techniques such as Gantt charts and PERT/CPM networks. This course will also cover organizational and behavioral factors to be considered in system design.

3 cr.

**Finance****FIN 611 Money, Banking, and Monetary Theory**

Prerequisites: FIN 630 or their equivalents. This course examines the organizations, functions, and problems of modern financial institutions and the instruments they employ. Key outputs include the ability to apply basic monetary theory to the contemporary financial environment including the role of central banks, the evolving structure of the financial industry, and how risk is managed through the use of modern financial instruments.

3 cr.

**FIN 617 Investment Theory**

Prerequisites: AC 500, FIN 630 or their equivalents. 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 622 International Finance and Multinational Business**

Prerequisites: FIN 630 and BUS 650. This course studies business operations in a multinational environment. The course addresses the international monetary environment and financing foreign investments and operations. Key outputs include the ability to decompose risk into operational and translational components and to control risk through the use of modern financial instruments.

3 cr.

**FIN 630 Managerial Finance**

Prerequisites: CIS 610, QM 610, AC 630 or their equivalents. This course examines how corporations benefit society by raising funds in the financial markets and employing them in productive activity. Key outputs 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.

## Legal Studies

### LS 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.

## Management

### MAN 600 Team Leadership

Prerequisite: Graduate standing. 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: MAN 600. 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

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

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; economical, 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; issues of market expansion.  
3 cr.

### MAN 640 Management and Conflict Resolution

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 are current trends and explored.  
3 cr.

### MAN 642 Organizational Development and Change

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**

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; personal ethical business code.

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 QM 610. 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**

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 webpage 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 economy will be on going throughout the semester.

3 cr.

## Quantitative Methods

### QM 610 Decision Support Models

Prerequisite: Graduate standing. 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 or models; model building and their application in spreadsheets; interpretation of modeling outcomes; and decision making.

3 cr.

## Graduate Courses In Engineering

### Computer Engineering

#### CPE 601 Probabilistic Methods for Digital Systems

Prerequisite: ENGR 212 or permission of instructor. This course is designed to provide students with the necessary fundamental concepts and mathematical tools to conduct performance analysis. These methods are used to describe random processes and queuing theory and their application to such areas as computer hardware and software performance, scheduling and stochastic machines. Both analytical models and simulation models are considered. Topics covered include basic probability theory review, random variables and transform theory. Also more advanced topics such as Markov models, single queue models and queuing networks are introduced. Several case studies shall be conducted throughout the course. The primary methods of assessing student learning are homework assignments, quizzes, exams and a term project.

3 cr.

#### CPE- 603 Object-Oriented Specification and Construction

Prerequisites: CPE 305 or equivalent and CPE 535 or equivalent. Students learn about software construction using a modern, object-oriented language. Students learn to specify systems using design patterns, and abstraction techniques, including procedural, data, iteration, type, and polymorphic. Advantages of information hiding using classes, objects, and inheritance are discussed. Students learn to design secure systems utilizing exception handling, event-based systems, and concurrency.

3 cr.

#### 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 525 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 535 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 640 Systems Modeling and Analysis

Prerequisite: CPE 538 or equivalent and CPE 501 or equivalent. This Course addresses analysis techniques including text and graphical which allow for systems to be

modeled functionally and behaviorally before design proceeds. Several approaches to modeling and analysis are covered including structured analysis and object analysis. Data, functional and behavioral requirements are modeled and refined, such that their completeness, clarity and consistency can be assessed.

*3 cr.*

**CPE 642 Advanced Verification and Validation.**

Prerequisite: CPE 542 or equivalent. This course examines current approaches to software testing strategies and techniques. The goal is to provide a framework for design for testability. Architectural issues are explored that can facilitate testing during the initial phases of a project. Metrics are developed to evaluate the many methods of testing. Students are exposed to automated approaches to program proving, code inspection, test coverage, and also component and system level regression testing

*3 cr.*

**CPE 645 Embedded Software Systems**

Prerequisite: CPE 542 or equivalent and CPE 501 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 535 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 a software projects will be studied at the critical level.

*3 cr.*

**CPE 650 Software Architecture**

Prerequisite: CPE 525 or equivalent and CPE 501 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 525 or equivalent and CPE 501. Students learn effective approaches to designing systems that are easier to maintain after their initial release. Maintenance accounts for some 70% 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 662 Advanced Digital Circuits**

Prerequisite: CPE 271 and CPE 562, or equivalent knowledge of digital design and basic VHDL. Students will learn how digital circuits can be tested. This will include some of the theoretical underpinnings of testing, and some practical techniques. In addition, students will learn some advanced topics in VHDL and programmable logic, including I/O, synthesis options, and synthesis constraints.

*3 cr.*

**CPE 670 Speech Signal Processing**

Prerequisite: EE 485 or equivalent. This is an advanced study of speech processing techniques. The emphasis is on current

literature and developments in speech analysis, transmission, synthesis, and recognition by machine.

3 cr.

### **CPE 675 Advanced Operating Systems**

Prerequisite: CPE 575. This is an advanced study of operating system theory and design. The emphasis is on current literature and developments in secure, distributed and network operating systems. Architectural issues associated with performance improvement are studied.

3 cr.

### **CPE 676 Precise Modeling of Software Systems**

Prerequisite: CPE 501 or equivalent. Students learn about ongoing advances in modeling techniques for software systems. Students learn about precision, performance evaluation, as well as security and safety aspects. Students utilize tools such as UML, its meta-models and proposed enhancements such as Object Security Constraint Language, Object Temporal Constraint Language, Students also use QoS Profiles and are presented with the theory associated with them

3 cr.

### **CPE 678 Secure Software Design**

Prerequisites: CPE 603 or equivalent. Students learn the theory and practice of software security. Students learn how to avoid some common software security risks, including buffer overflows, race conditions and random number generation. Attention is also given to the identification of potential threats and vulnerabilities early in the design cycle. The emphasis is on methodologies and tools for identifying and eliminating security vulnerabilities. Techniques are introduced to prove the absence of vulnerabilities. Approaches to designing is introduced as well as incorporating analysis and risk management throughout the software life cycle.

3 cr.

### **CPE 680 Distributed Processing**

Prerequisite: CPE 450 or equivalent. This course examines advanced topics in distributed processing. Topics include scheduling algorithms, routing algorithms, concurrency control, distributed databases, and distributed operating systems.

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 501 Advanced Electrical Engineering Analysis**

Prerequisite: MATH 350. 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 611 Digital Communications Systems**

Prerequisite: EE 485; EE 523 or equivalent. This is a study of digital communication systems. Topics include information theory, spectral representation of signals, sampling theorem, modulation methods, error and error correcting codes, communication networks, terminals, interfacing message switching, queuing, digital filters, and the use of the fast Fourier transform. 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 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 557 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, radiation resistance; basic antenna

elements including dipoles, loops, microstrip antennas, and traveling-wave antennas; antenna arrays; microwave aperture antennas; 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; applications to open and shielded transmission lines, antennas, cavity resonances and scattering.

3 cr.

### **EE 621 Coherent Optics**

Prerequisite: MATH 501, 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 525 or EE 570. 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 630 Advanced VLSI Design**

Prerequisite: EE 528, EE 530, EE 531 or equivalent. The course will build upon basic CMOS VLSI design and introduce techniques and issues that arise in the design of modern microchips by working through a number of design projects. This is an advanced course for graduate students in the design of VLSI chips using either a standard cell or a custom design methodology with the help of computer-aided design (CAD) tools in a VLSI design laboratory setting. Chips designed in the course will be fabricated by an outside organization, and validated by students in the laboratory. The course content deals with such topics as designing for speed, designing for low power consumption, 'floorplanning', incorporation of VHDL into the design process, methodologies for ASIC and FPGA implementations, designing for testability, and designing for mixed-mode applications.

3 cr.

### **EE 650 Advanced Digital Signal Processing**

Prerequisite: ENGR 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 525 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 680 Pattern Recognition**

Prerequisite: EE 485; ENGR 212. This is an examination of pattern recognition. Topics include statistical decision theory, pattern classification by distance functions and likelihood functions, trainable pattern classifiers, deterministic and statistical approaches, pattern preprocessing and feature selection, and syntactic pattern recognition.

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 590 Special Topics in Engineering Management**

This is a study of an advanced topic in engineering of special interest to industrial and engineering management majors, but not carried in the catalogue on a regular basis.

3 cr.

### **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 Management**

Prerequisite: Graduate standing. This course covers the fundamental concepts of quality management including the management philosophy underlying QM. 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 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 620 Multi-Criteria Decision Analysis**

Prerequisite: Graduate standing. 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 Production Management**

Prerequisite: Graduate standing. This is a study of the problems, analytical techniques, and recent developments that relate to the production function. Topics include forecasting, inventory control, production planning, scheduling, quality control, and the relationships between manufacturing and other functions of the firm. Emphasis is on mathematical and statistical methods of performing these functions.

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 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 643 Design of Experiments**

Prerequisite: EMGT 615. 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: EMGT 607 or equivalent. 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 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 Management Project**

Prerequisite: EMGT 605, EMGT 609, EMGT 615, and nine credit hours minimum of the engineering electives in the concentration area. 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 601 Advanced Mechanical Engineering Application Techniques (Formerly ME 510)**

Prerequisite: MATH 350, ME 208, ME 316, or concurrently; or 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 assess students include homework assignments, quizzes, examinations, projects and a final exam.

3 cr.

**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 (Formerly ME 519)**

Prerequisites: ME 208; Math 350; W 435 or concurrently. This advanced course builds on the material presented in ME 208 and develops the student's 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 626 Gas Dynamics (Formerly ME 526)**

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, projects, 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 649 Computer-Aided Engineering (Formerly ME 542)**

Prerequisite: Senior or graduate 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 optimization 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-hour lab.

*3 cr.*

**ME 651 Applied Computational Fluid Dynamics  
(Formerly ME 551)**

Prerequisite: ME 304; ME 316, and senior 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 660 Noise Control and Engineering Acoustics**

Prerequisite: Baccalaureate degree in mechanical and engineering or the permission of the ME department. Acoustics is one of the many, interesting and rewarding areas of science and technology because of its ubiquitous role in our everyday life, the many practical applications, and its interdisciplinary nature. In this course students learn the concepts, physical phenomena, and models that form the foundations of engineering acoustics. The practical relevance of the material is stressed throughout the course and demonstration experiments are performed in class. Topics include the nature of sound, sound in fluids, impedance, sound energy and intensity, sound sources, sound absorbers, sound in waveguides, sound in enclosures, and sound transmission. Practical applications of

engineering acoustics, such as thermo-acoustics, acoustic imaging in nondestructive evaluation and biomedical imaging, jet noise, noise control, architectural acoustics, and others, are discussed. The methods of assessing students include homework, quizzes, a midterm exam, design project report, and a final exam.

*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 College 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.

Western New England College takes many out-of-class experiences and finds ways to help students see the educational benefit that they receive from these experiences. It might be an organized discussion about the experience; it might be a speaker who is brought in to tie together the theory and the practice; or it might be a portfolio that the student constructs. We encourage students to reflect on their experiences beyond the classroom in order to integrate their co-curricular 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. At Western New England College, 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.

See p. 44 for LBC college-wide requirements.

### Campus Life

**Living Facilities.** Students may live in a variety of accommodations, ranging from traditional residence halls to room suites with semi-private baths to single story

apartments or town house 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 College's apartment complex. Juniors and seniors may reside in apartments at Gateway Village or the town houses 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 at the time of room assignment. Assignment is largely determined by the student's housing preferences, class level, and demonstrated academic performance. Requests for college housing are honored depending on availability of facilities and fulfillment of application and payment 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 college 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, associate director, and assistant director of Residence Life, 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, and commuting students may choose to participate in a variety of alternative meal plans, and may register for the meal plan of their choice at the Residence Life office during the first two weeks of each semester. 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 during the first two weeks of each semester at Residence Life.

Students may also purchase 'declining balance points' 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 College. In addition to various recreational and dining facilities, it contains offices for student clubs and organizations, 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, Residence Life, Learning Beyond the Classroom, The CareerCenter, 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 College 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 College name or emblem are also available.

**Rivers Memorial Building.** 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 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 Parent's Association provides an organized vehicle for allowing parents to take a more active part in the affairs of the College. Principally, the Parent's 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 College. A Parent Handbook is published by the Parent's 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 College in one location by a team of client service representatives 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 director 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 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.

**Counseling Services.** The Counseling Services office provides professional, confidential help to students with personal, social, and educational concerns. Common areas of concern include adjustment to college, low self-esteem, relationships, stress, depression, eating disorders, substance abuse, sexual/physical abuse, and test anxiety. Services include individual, couple, and family counseling, crisis intervention, consultation, and referral. Psychiatric consultations are available on a referral basis. Students may borrow self-help books and tapes from a book/audio tape lending library. Remember that no concern is too small to bring in to discuss. Anything that causes uneasiness or anxiety may affect academic performance as well as one's personal life. Our caring professionals are here to help.

The **CareerCenter**. The career staff assists students and alumni with career planning, occupational exploration, job search strategies, graduate school decision-making, and internships. The **CareerCenter**, located on the second floor of the St. Germain Campus Center, offers a variety of programs

on career-related topics. Many of these programs are sponsored by particular residence halls and student organizations. The College's strong commitment to the development of students' career decision-making is demonstrated by individual career advising services, and assistance in identifying career options.

The **CareerCenter** offers four different career planning guidelines for students at each level of their college 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, they are urged to explore academic interests through a variety of courses, identify potential majors that relate to their interests and abilities, and focus on time management and study skills.

Career counselors can assist students in deciding on a major and which career path to follow with their major. The internship program provides students with an opportunity to experience a work environment and to apply the theory they have learned in the classroom in local businesses, industry, and organizations.

Students are also encouraged to use the resources available through the **CareerCenter**. These include a computer career guidance program, a library of career-related books and directories, job boards and Internet sites related to a wide variety of occupations. **CareerCenter** staff in cooperation with the office of Alumni Relations can put students in contact with alumni actively employed in their fields and eager to share occupational information.

The Employer Relations career recruiting program brings students in contact with employers through on-campus recruiting and resume referrals. Students are encouraged to attend 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 a principal tool for alerting students to employment opportunities, recruiting schedules, and workshops.

The newsletter is online at [www1.wnec.edu/careercenter](http://www1.wnec.edu/careercenter) and provides students with a continuing supply of updated job related resources.

The Human Resources Office also coordinates student employment. There are two types of student employment at Western New England College, **Federal Work Study** and **Institutional**.

**-Federal Work Study (FWS)** is a need-based financial aid program that utilizes funds awarded as part of the Federal Financial Aid Package.

**-Institutional** is a direct hiring of students without a FWS award as college employees.

Students interested in working on campus should register online at <https://www.myinterfase.com/wnec/student>. This will allow them to review available employment opportunities that departments have posted.

Further information is available in the Human Resources Office with the Assistant to the Executive Director of Human Resources and the **CareerCenter**.

Students who receive a Federal Work Study Award should plan to visit the Human Resources to complete a student employment application, review available employment opportunities, and be referred for interviews. The Assistant to the Executive Director Human Resources and the **CareerCenter** coordinates these activities.

The **CareerCenter's** effective combination of educational career programs and job search services provides a valuable complement to the student's academic experience.

**Health Services.** Health Services is located in the Alumni Healthful Living Center. The department is directed by a full-time certified family nurse practitioner and staffed with nurse practitioners, physician assistants and a part-time physician. Health care is available Monday and Thursday 7:00 a.m. to 6:00 p.m., Tuesday and Wednesday 8:30 a.m. to 4:00 p.m. and Friday 9:00 a.m. to 4:00 p.m. when undergraduate classes are in session. Referrals are provided for those in need of specialist care.

During the hours when Health Services is not available, students will find access to a variety of health care facilities in close proximity to the College and can be directed to them by their Resident Advisors or the Campus Police.

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. 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 health care providers.

The Commonwealth of Massachusetts requires that undergraduates taking nine credits or greater, or graduate students taking 7 credits or greater must either purchase insurance through the College or complete a waiver form with pertinent information about their private insurer. For additional information call Health Services.

**Cocurricular Activities.** Cocurricular activities are an integral part of student life at Western New England College. Such activities complement the more formal academic program inside the classroom. Significant emphasis is also placed on development of leadership skills, motivation, program promotion, and effective communication. A regular series of leadership training programs is sponsored by the Student Activities Office. Student Activities also informs students about the myriad programs and activities which are offered on most weekends of the academic year.

**Multicultural Interests.** In support of the educational value attained through representation of various cultural backgrounds, the College recognizes the particular concerns of students of color and international students. The College values and supports diversity 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 Month, and visiting artists of rich and culturally diverse heritages.

**Campus Ministry.** The Office of Campus Ministry provides liturgical celebration 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 College community to worship in his/her own way. The Catholic, Jewish, and Protestant staff members meet for lunch Tuesdays at noon with students, faculty, and administrators of their respective denominations. 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 Year Program

### Mission Statement

The Office of Freshman and Transfer Students pays particular attention to creating a network of support persons whose intention involves proactive interaction with first year students. As an agent of change, the Office of Freshman and Transfer Students 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.

The First Year Program at Western New England College seeks to lay the foundation for student success. Through intentional construction of a personal support network and sponsorship of educationally purposeful initiatives, the First Year Program prompts students to embrace intellectual challenge, acquire a sense of place, engage social connections and develop educational

purpose. The First Year Program challenges students to recognize the value of college and to discard any notion of mediocrity in performance, so that full academic and personal potential can be attained.

The First Year Program values individuality and diversity. It acknowledges that students enter college at varying developmental stages and with unique needs. The First Year Program is committed to fostering a 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. It seeks to move students from dependent to interdependent relationships. The First Year Program emphasizes interaction with faculty early in the student experience and characterizes peers as highly influential. It embraces community and seeks to quickly integrate students into the campus culture, to formulate a framework of responsible citizenship and to acquire class identity.

### **The Goal of the First Year Program**

The formula for success in the first year 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 first year 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 First Year Program clarifies the simple tasks and attempts to make simple the more difficult tasks of college adjustment. The first year program challenges students to work to personal potential and to discard any notion of mediocrity.

### **Program Objectives**

The First Year Program offers help in the following ways:

- Making students aware of services and resources
- Identifying 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

### **Programs and Services**

Programs are always changing to remain current with student needs. In its present form, the First 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. The First Year Program is unique in this context. 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 95 percent of first year students choose to participate.

## 2. Transition Program

When the first term begins, attention is paid to making the necessary preparation to begin the semester with the resources for a relatively smooth transition. Of particular consequence is the opportunity for each student to complete a personal success plan. The personal success plan provides a framework for establishing specific, reasonable, measurable, attainable, and timely goals for the first semester. It is much more probable that success will be realized when students have direction and purpose. Student life at college is symbolically represented by the Fall Convocation, an academic assembly focusing on the tradition and purpose of higher education and a forum for recognizing the preceding year's freshman honors recipients.

## 3. First Year Seminar

All first semester first year students and transfer students with 15 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 School. Credit values vary. Upper-class student assistance further distinguishes the course in the context of modeling and fostering academic integration.

## 4. 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.

## 5. 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, the first set of grades is calculated based on assignments completed to date. In progress grades are distributed to first year students through the assigned advisor. 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 either the Office of Freshman and Transfer Students or School Assistant Dean, academic progress monitoring is put in place through a series of meetings during which continuous assessment of progress is made.

## 6. 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 upperclass students who have previously taken the course.

## **7. 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. First year freshman living on campus also find that residence hall assignments are often clustered around academic interests to promote the formation of study groups and sharing of career interests. It is thought that students who study together and share academic interests are more likely to find college a true learning community. First year students are also encouraged to participate in the surrounding community through community service, mentoring in the Springfield Public Schools and other learning beyond the classroom experiences. 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.

## **8. Celebrating Student Success**

Student achievement is valued at Western New England College. Students can expect to hear from the dean of the Office of Freshman and Transfer Students 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.

## **9. 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 School 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 School 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 College 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:

### **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. 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

Each first year student is assigned to an upperclass 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.

## 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. Freshman 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 or to solicit advice and counsel regarding educational or personal goals, students and parents are encouraged to contact the Dean of Freshman and Transfer Students.

## 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 Schools 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 College. 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 College community.

### Campus Activities Board

The Campus Activities Board is a standing committee of the Student Senate responsible for lecture 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

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 College 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, Political Science Club, Math Club, Association for Computing Machinery Student Chapter, Management Association, Sport Management Association, Criminal Justice Club, and Pre-Law Society. Particular student interests can also be pursued through such groups as the Bowling Club, Cheerleading Club, Outing Club, Dance Club, Martial Arts Club, 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 College 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 Pep Band, Stageless Players Drama Club, Jazz ensemble, and Concert Band. 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 College and community events. The Golden Bear Pep Band performs at home football and basketball games along

with the Dance Team and Western New England College Step Squad. The Chorus hosts a concert each semester with the Faculty/Staff Chorus. The Student Art show is featured each September in the Campus Center Art Gallery. Students may have their fiction and poetry published in the student literary magazine, *The Review of Art and Literature*. A Fine Arts minor is now offered through the School of Arts and Sciences. Website [www1.wnec.edu/arts](http://www1.wnec.edu/arts)

### Publications and Communications

*The Cupola* is the College 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 College'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 Building, 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 rules.

## Professional Societies

### American Marketing Association (AMA).

Western New England College 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 College 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 College 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 School 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 School 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 College 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 College.

**Institute of Industrial Engineers (IIE).** The objective of the Western New England College 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 College 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 7% of juniors, top 10% of seniors and top 20% 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 College.

**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% 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 College's concern for students' well being. The Center offers programs in health services and education, recreational activities, and physical education. The College'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; weight room; courts for racquetball, handball, squash, and tennis; a studio for aerobics and dance; a Wellness Center; and a multipurpose field house.

### Intercollegiate Competition

Western New England College 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 College belongs to the Great Northeast Athletic Conference for most sports. The Golden Bears strive for athletic excellence.

### Other Opportunities

The College 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 College.

## ROTC

The College offers both Army and Air Force Reserve Officer Training Corps (ROTC) programs (see p. 28). 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 desire 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.



## TUITION

### Undergraduate

#### Full-time Students Matriculating After 5/1/03

(12 hours or more per semester)

#### Basic Annual Fees (2006-2007)

	Arts & Science/Business	Engineering
Tuition (12-17 credit hours per term)	\$22,982.00*	\$24,018.00*
Student Activities Fee	300.00**	300.00**
Comprehensive Services Fee	1,344.00	1,344.00
Tuition & Fees	24,626.00	25,662.00
<b>Residential Fee</b>		
Room (two occupants) & Board	9,526.00	9,526.00
<b>Total</b>	<b>\$34,152.00</b>	<b>\$35,188.00</b>
Health Insurance Fee (subject to waiver)	1,635.00**	1,635.00**

\*Students who select programs of more than 17 credit hours are charged at a rate of \$766.00 per credit hour for each credit hour over 17.

\*\*Fiscal Year 2005-2006 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  
(2006-2007) \$481.00

### Graduate Students

Graduate students are charged per credit hour as follows:

Tuition per credit hour (2006-2007)	\$568.00
MAET	\$741.00 per course
MAMT	\$741.00 per course
MEEE	\$741.00 per course

## FEE STRUCTURE

### All Students

**Application Fee.** The College application fee of \$50 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 description section of this catalogue. 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 College. The fee is \$672.00 per semester for full-time undergraduate students.

**Health Insurance Fee.** The College 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 (FY 05-06 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

College housing is available for full-time students, both men and women, in a variety of living styles. Annual room and board fees for the 2006-2007 academic year for each student are as follows:

Double Occupancy/20 meal plan  
\$9,526.00

Gateway Apartments  
\*\$5,810.00

Evergreen Village  
\*\$7,030.00

*\*Room fee only.*

**General Housing Policy:** To be considered for residence in college housing, the student must be actively enrolled at the College 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 College, or provides notification, as required, of his/her intent to live off campus. Since campus residency is optional at the College, 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 non-refundable, non-transferable housing verification payment.

**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 College. 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 College 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. 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 College 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 College.

**Withdrawal from campus residency resulting in commuter status:** The College 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) 2006 Fall Semester: If the student notifies the office of his/her decision to commute by August 25, 2006 (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 August 25, 2006, all room and board charges for the fall semester will be required to be paid in full by the student.

- b) 2007 Spring Semester: If the Student notifies the office of his/her decision to commute by January 2, 2007 (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, in writing, of his/her decision to commute after January 2, 2007, all room and board charges for the spring semester will be required to be paid in full by the student.

**Complete withdrawal from the College:** All room and board charges will be credited to the student's account if (s)he has officially withdrawn from the College prior to the first day of classes.

- a) 2006 Fall Semester: As of August 28, 2006, all room and board charges for the fall semester will be required to be paid in full by the student.
- b) 2007 Spring Semester: As of January 16, 2007, all room and board charges for the spring semester will be required to be paid in full by the Student.

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 college housing. Failure to meet the established payment deadlines releases the College from any obligation to maintain the housing reservation.

Normally, College 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 College.

College 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 Room Damage Deposit.**

Students are required to leave their rooms in good order when departing from the College. A room damage deposit of \$100 per student is required of all resident students. Damages are charged against occupants of rooms when necessary. This deposit is refundable at the end of the senior year or on withdrawal from the College. The refund will be based upon the condition of the room 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, 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 2006-2007 academic year is \$4,526.00.

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 College. If sent by mail, they should be addressed to Student Administrative Services.

The Trustees of the College reserve the right to change tuition rates or fees whenever it is deemed necessary.

Students are not permitted to attend any College 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 College must be met before a student may qualify for re-enrollment, a certificate of honorable dismissal, a transcript, or a diploma. The College 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 non-refundable 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 \$500 to \$900 per year.

## **Withdrawals and Refunds**

Tuition and fees are not transferable to future semesters. Fees, room, and board charges are non-refundable and tuition is refunded only as stated herein. The College 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 College. Refunds are made to students based on the following schedule:

100% refund of the tuition charge, less the tuition deposit, prior to the first day of classes.

75% will be refunded during the first week of classes.

66 2/3% will be refunded during the second week of classes.

33 1/3% will be refunded during the third week of classes.

25% will be refunded during the fourth week of classes.

No refund will be granted after the fourth week of classes.

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 College 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.

An official withdrawal form must be completed and filed with the Student Administrative Services (SAS) office. Students are urged to consult with the Dean of Students, the Dean of Freshmen and Transfer Students, or the Director of Continuing Education before taking such action. When such conditions as severe illness or absence from the area prevent a student from filing the form in person, an application for withdrawal by mail is acceptable. A letter should state the reasons necessitating the withdrawal. The date on which the official withdrawal form is filed with the SAS office is considered to be the date of withdrawal. Approved refunds will be computed on the basis of the date appearing on the official withdrawal form. Absence of class without completing the form does not constitute withdrawal from a course.

No refunds are made on fees other than tuition (with the exception of the room damage deposit). Students who withdraw with an unpaid balance will be financially liable for any amount remaining unpaid after a refund credit has been applied to the balance.

No student may withdraw in good standing from the College unless all financial obligations have been met.

## **Late Payment Charge**

A finance charge will be computed by a period rate of one percent (1%) per month, which is an annual percentage rate of twelve percent (12%) 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 College 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 non-refundable charges.

## **Sibling Discount**

This is a \$500/year discount offered to each sibling when a family has more than one full-time undergraduate child attending Western New England College in a given year. Each student receives a \$500 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 College. 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 College 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 College 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](http://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 College 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 semester.

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.

Part-time students must have final approval into a degree program and be enrolled in at least six credits per semester a 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.

### Air Force ROTC Scholarships

Western New England College provides full room and board to any student receiving a four-year Air Force ROTC scholarship. If students select Gateway or Evergreen Village for residence, they receive full room and \$1,500. Other students, including Advance Designees, who received ROTC scholarships after enrolling at the College, will receive full room during the period that they qualify for the ROTC scholarship. The incentive will be considered part of all gift aid a student may receive from the College based on merit or need. In no case will the total gift aid provided by the College and external gift aid exceed the student's direct cost of education.

### 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 College. 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 College GPA of 3.0. The student must have demonstrated financial need and have been involved in College 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 3.0 GPA and meet the other scholarship criteria. This endowed scholarship was established by the Western New England College 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 Schools of Arts and Sciences, Business, and Engineering. Two awards are also made to part-time students. The College selects the recipients on the basis of scholarship 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 College. 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.

### 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

College. 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 College 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 College or prior to studying at the College, and with a commitment to engage in service on or off campus while a student at the College. The scholarship is renewable upon demonstration of meeting the established criteria for the scholarship.

### **Army ROTC Scholarships**

Four, three-, and two-year scholarships are awarded annually to qualified high school senior, freshman, and sophomore students. Scholarships may pay full tuition at Western New England College, \$450 for books, and a \$1,500 stipend annually. There is also a special incentive program provided by the College for ROTC scholarship winners. Scholarship applicants must be U.S. citizens, have a minimum 2.5 GPA, and meet age and medical standards. For additional information contact the Army ROTC office at 1-800-434-WNEC or 413-782-1332/45.

### **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 Schools of Arts and Sciences, Business, or Engineering. Each scholarship recipient must have demonstrated financial need; a cumulative Western New England College GPA of 2.7 or better; and have demonstrated leadership, either through involvement in Western New England College 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 College Trustee Timothy P. Crimmins Jr., president and chief executive officer of The Bank of Western Massachusetts, who received his undergraduate degree from the College in 1970; and College Trustee Frank P. Fitzgerald, chairman of the board of The Bank of Western Massachusetts, who received his undergraduate degree from the College in 1968 and his law degree from the College's School of Law in 1973.

### **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 School of Business. Preference is given to students who are involved in a leadership position in a student organization or are enrolled in ROTC.

### **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. 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 died during the final semester of her senior year. While a student at the College, 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*. Preference is given to students majoring in English.

### **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/G'61 and Maria Bromage.

### **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 College. This scholarship was established through the generosity of Janet Johnson Bullard '69.

### **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 College Trustee Thomas R. Burton '70 in memory of his mother, Evelyn.

### **William F. Campanella Endowed Memorial Scholarship**

This scholarship is awarded to a full-time undergraduate student beginning in their sophomore year who has demonstrated the following: involvement in the community, either through work in Western New England College 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 College 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 College 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 College. This scholarship has been established through a gift by President Anthony Caprio H'00.

### **Esther and Salvatore Caprio Endowed Scholarship**

This merit scholarship was funded by a gift to the endowment fund of the College by Esther and Salvatore Caprio, friends of the College and parents of the College'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 College 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 College 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 College, based on either merit or need. When the Rhode Island student has initially been awarded a strictly merit based scholarship by the College, 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.

### **Sandra and Robert Carnevale Endowed Scholarship**

A scholarship is awarded to a student in the School 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 College Trustee Robert Carnevale '68 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, who served as a trustee of the College from 1959-1969, 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 College from 1945 to 1979 and was Executive Vice President of the College at the time of his retirement in August 1979.

### **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 College.

### **Class of 1951 Scholarship**

The scholarship is awarded to a current full-time freshman with demonstrated financial need and solid academic performance for whom the scholarship could make the difference for the student to return for sophomore year. The funds are to be awarded to that person in equal amounts for each of their sophomore, junior, and senior years (they will not get an award for any part of their freshman year). This scholarship was initiated through the leadership and generosity of Alfred A. LaRiviere '51/H'95/H'01, with contributions also from Raymond Meyers '51/G'64/H'01, Elbert F. Robbins '51/H'01, Sumner W. Robbins '51/G'60/H'01, and John F. Sullivan '51/H'01.

### **Steven E. Cocchi Endowed Memorial Scholarship**

Scholarships are awarded annually to undergraduate students, with preference given to junior and senior undergraduate School 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 College.

### **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 College 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 College 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 College's Faculty Senate, the Stageless Players, and the intramural sports program. He passed away June 6, 2002.

### **Louis T. Cormier Endowed Memorial Scholarship**

This fund was established by Mary T. Cormier in memory of her husband, Thomas Cormier '47, formerly of the faculty of the School of Business. 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.

### **Kevin S. Delbridge Endowed Scholarship**

A scholarship is awarded to a full-time student from greater Springfield enrolled in the School of Business. The award is based on financial need and demonstrated academic ability. This scholarship is provided from a fund established by College Trustee Kevin S. Delbridge '77.

### **Diversity Scholarship of Greater Springfield**

Merit scholarships of varying amounts are granted to minority students from the greater Springfield area.

### **Henry T. Downey Endowed Scholarship**

Scholarships of varying amounts are granted to undergraduate accounting students or law students from a fund established by the College trustees in memory of Henry T. Downey '50/L'56, former vice-chairman of the Board, who died in 1973.

### **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 College.

#### **Financial Aid Restricted 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 College and makes satisfactory progress toward degree completion. This scholarship was funded by a gift to the endowment fund by College Trustee Frank P. Fitzgerald '68/L'73.

#### **Gauld/Taft Engineering Scholarship**

A scholarship of \$1,000 is awarded to an incoming full-time freshman who graduated from a New Hampshire public high school and has demonstrated financial need. The student must be a legal resident of New Hampshire and certify this with documentation acceptable to Western New England College. The student must be enrolled in the School of Engineering and can be majoring in any of the undergraduate engineering degree areas. The individual must have a minimum SAT score of 1,000 and a cumulative high school GPA between 2.80 – 3.20. The student should have shown personal motivation and a desire to succeed. This scholarship is offered through the generosity of Mark E. and Susan G. Montross, both of the Class of 1981, and is named in honor of Susan's parents and grandparents.

#### **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 School of Business or Engineering, and have at least a 2.5 cumulative GPA. Preference is

given to students working with youth development.

#### **Gilbert Matching Grant Program**

The Commonwealth of Massachusetts annually provides the College 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 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/L'42, secretary of the Board of Trustees of Western New England College from 1942-1974, by members of Pi Tau Kappa fraternity and the College trustees.

#### **Alison Mary Harris Endowed Memorial Scholarship**

Awards are made to juniors and seniors in the School of Business. This scholarship was established in memory of Alison Mary Harris '89 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 College exchange program either to study abroad or to study at American University in Washington, D.C. 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 College 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 College 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 College 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 was established in honor of Beaumont A. and Winifred S. Herman. Dr. Herman was president of the College 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 College 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).

#### **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 College Professor of Government and Coordinator of International Studies, 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 College Trustee C.W. Gilluly and his wife, Marny, in honor of Father Christopher Johnson, who served Western New England College 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 G'75 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 College.

#### **Thomas K. Kamp Memorial Scholarship**

A scholarship of one-half tuition is awarded annually to a senior in the School 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, 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 School of Business. The recipient must be a resident of Springfield, MA, have demonstrated financial need, and have a cumulative high school GPA of 3.0. The scholarship is renewable for an additional three years provided that the student maintains a Western New England College GPA of at least 3.0, continues to have demonstrated financial need, and remains enrolled in the School 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 College and a member of the College'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 College, 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, PA. 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 long-time College employee Phyllis M. Knecht and their families, and by the President of the College. 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 College 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 College 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 College; 1998-2002, Assistant to the President.

Mrs. Knecht has been long respected, recognized, and admired by the entire College 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 Schools of Business, Arts and Sciences, 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 School of Business. Carol initiated the art courses at Western New England College and established the College's art gallery. She has taught art classes and curated the art gallery at the College for more than 20 years.

### **David P. Kruger Endowed Scholarship**

A scholarship is awarded with preference for students in the School 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 College, graduating with the class of 1968. He earned his master's in Business Administration from the College in 1972. Mr. Kruger has served the College 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 Alpha Lambda Delta 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 College. This scholarship was established by College Trustee Alfred LaRiviere '51/H'95/H'01 and his wife, Marian.

**Alfred and Marian LaRiviere Endowed Scholarship**

This scholarship(s) is awarded annually to students based on demonstrated financial need. It was established by College Trustee Alfred LaRiviere '51/H'95/H'01 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 College 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 College. Students must apply for the scholarship through the process defined by the College. The scholarship recipient must remain in good standing with the College throughout his or her first year or forfeit the scholarship. The scholarship is renewable for the subsequent years at the College 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 College Trustee Alfred LaRiviere and his wife, Marian. Al LaRiviere, a devoted supporter of the College, graduated with the class of 1951 and received two honorary degrees from the College: 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 College 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 College 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 College 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 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 children of employees of Ludlow Textiles Company, Inc., and to students who are Ludlow, MA, residents. This scholarship is provided from a fund established by College Trustee Martin A. Lower and his wife, Roberta.

**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 freshmen 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 \$1000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the School 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 College. The scholarship was established through the generosity of Mollie Marcus in memory of her husband Harry, the founder of East Coast Tile Imports, Inc., based in Ludlow, Massachusetts.

**Arthur and Rebecca Marshall Scholarship**

This scholarship is awarded to a full-time undergraduate student who demonstrates financial need. The scholarship was

established by Mr. Marshall through a charitable trust held at The Jewish Endowment Foundation. Attorney Marshall was a longtime friend of the College. He was awarded the honorary degree of Doctor of Laws in 1998 by Western New England College.

### **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. Preference is given to students in the School 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 Raymond Meyers '51/G'64/H'01 and his wife, Shirley.

### **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 Milkay established this scholarship in memory of their daughter Jeanne Marie, an English major who graduated from Western New England College in 1984. Jeanne Marie Milkay passed away April 15, 1986.

### **Mr. and Mrs. William F. Montross Business Scholarship**

A scholarship of \$1,000 is awarded to an incoming full-time freshman who graduated from a New Hampshire public high school and has demonstrated financial need. The student must be a legal resident of New Hampshire and certify this with documentation acceptable to Western New

England College. The student must be enrolled in the School of Business and can be majoring in any of the undergraduate business degree areas except General Business. The individual must have a minimum SAT score of 1,000 and a cumulative high school GPA between 2.80 – 3.20. The student should have shown personal motivation and a desire to succeed. This scholarship is offered through the generosity of Mark E. and Susan G. Montross, both of the Class of 1981, and is named in honor of Mark's parents.

### **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 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 College or enrolled in a masters program in the School of Engineering or enrolled in the School of Law. Francis Oleskiewicz is a trustee of the College 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, 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.

### **Linda and James Peters Scholarship\***

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial

need who is enrolled in the School 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 College. This scholarship was established through the generosity of Linda M. L. Peters G'96.

### **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 College GPA and satisfactory academic progress is maintained.

### **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 and to students from the Holyoke-Springfield, MA, area.

### **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, 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.

### **Residence Hall Scholarship**

Scholarships are available to residential students with demonstrated financial need.

### **Rizzi Family Scholarship\***

A scholarship of \$1,000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the School 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 College. This scholarship was established through the generosity of Matthew A. Rizzi '95.

### **Sattler-Goodrich Scholarship**

A scholarship fund in memory of Allan R. Sattler '59/G'61 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.

### **School of Arts and Sciences Endowed Scholarship**

Funded by the Endowment for Student Financial Aid for the School of Arts and Sciences, this annual scholarship is awarded to undergraduate, upperclass, full-time students in the School of Arts and Sciences with demonstrated financial need and minimum cumulative GPA of 3.0. Contributions from alumni, staff, and friends of the College fund this endowed scholarship.

### **School of Business Endowed Scholarship**

Funded by the Endowment for Student Financial Aid for the School of Business, this annual scholarship is awarded to undergraduate, upperclass, full-time students in the School of Business with demonstrated financial need and minimum cumulative GPA of 3.0. Contributions from alumni, staff, and friends of the College fund this endowed scholarship.

### **School of Engineering Endowed Scholarship**

Funded by the Endowment for Student Financial Aid for the School of Engineering, this annual scholarship is awarded to undergraduate, upperclass, full-time students in the School of Engineering with demonstrated financial need and minimum cumulative GPA of 3.0. Contributions from alumni, staff, and friends of the College fund this endowed scholarship.

### **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.

### **Clark and Harlean Shea Scholarship\***

A scholarship of \$1000 is awarded to a full-time freshman with demonstrated financial need who is enrolled in the School of Engineering. If the student continues to meet the criteria, the scholarship is renewable and will provide financial support for the student's four years at the College. The scholarship was established through the generosity of former College trustee Clark R. Shea '66/G'69 and his wife Harlean.

### **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 College 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 College.

### **Sibling Discount**

This is a \$500/year discount offered to each sibling when a family has more than one full-time undergraduate child attending Western New England College in a given year. Each student receives a \$500 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.

### **William and Iona Sleith Endowed Scholarship**

William Sleith, alumnus of the Class of 1944, served the College as corporator and trustee from 1958 until his death in 1996. 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 College based on need. Sleith's generous gifts to the College over the years attest to his commitment to the College and to his belief that minority students are a vital constituency of the College 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 College (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 Psychology Department 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 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 School of Engineering with secondary consideration given to undergraduates majoring in management in the School 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 School 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 School of Business. This endowed scholarship was established by a Class of 1973 alumnus of the School 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 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, 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.

#### **Kevin R. Sullivan Endowed Memorial Scholarship**

A scholarship fund in the memory of Kevin R. Sullivan '81 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.

#### **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 2.70 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 3.50 GPS 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 School of Business from a fund established by College Trustee Brian P. Trelease '67/G'71. Funding is based on the student attaining Dean's List standing.

#### **Trowbridge-Brown Endowed Scholarship**

Scholarships are awarded annually to seniors in the School 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 a deserving undergraduate engineering student. The scholarship is named in memory of Richard H. Tucker '80, and was established by his family.

### **Tuition Assistance Grants**

The College, 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. In cases of severe financial need, awards may be equivalent to the full tuition charges.

### **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. This scholarship was established in memory of Janice by her brother, Thomas A. Gruppioni '77.

### **WESTBANK Endowed Scholarship**

This scholarship is awarded to an entering freshman from Hampden County who is enrolled in the School 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, president of WESTBANK.

### **Western New England College-MassMutual Achievers Scholarship**

The College 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 College 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 College through general scholarship giving.

### **Wesley and Francis Wilson Scholarship**

Scholarships of amounts varying from \$200 to \$600 are available to full-time students. At least ten awards are made each year. Preference is given to students in the greater Springfield area. The scholarship is funded through a trust established by E. Wesley and Frances Wilson, friends of Western New England College.

### **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.

\* Scholarships marked with an asterisk have been created through the College's new 4-for-4 Scholarship Program. Donors commit to making gifts of \$1,000 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 Schools of Arts and Sciences, Business, or Engineering, or for a student enrolled in any undergraduate program at the College.

## **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.

### **Alumni Endowed Scholarship**

Scholarship awards are made annually by the Alumni Association to two undergraduate part-time students. The College 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 College when she passed away in 1988. Her family and friends established this scholarship in her memory.

### **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 College Trustee Thomas R. Burton '70 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 College Trustee Norman J. Cartmill '50/G'61/H'01 and his wife, Doris.

**Louis T. Cormier Endowed Memorial Scholarship**

This fund was established by the wife of the late Thomas Cormier '47, formerly of the faculty of the School of Business. 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.

**Denise G. Crawford Endowed Scholarship**

This scholarship is awarded to a part-time student in the School of Business. The scholarship was established by Mrs. Crawford's husband, Walter J. Crawford '61, 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 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 College 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 College from 1955 to 1976.

**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.

**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 \$4,050 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 from Student Administrative Services at the College.

**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 \$4,050 a year.

**Federal Perkins Loan**

The College 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 \$2,625 per year, sophomores may borrow up to \$3,500 per year, juniors and seniors may borrow up to \$5,500 per year. Graduate students may borrow up to \$18,500 per year. The total amount that undergraduates may borrow is \$23,000, while the total for graduate students is \$65,000 (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 9 percent. Repayment begins 60 days after the loan is disbursed. Applications for this loan are obtained through Student Administrative Services.

## **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 \$2,300 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.

### **State Loan**

The Commonwealth of Massachusetts offers a limited amount of need-based loan funding to Massachusetts residents at a 0 percent interest rate. Application can be made by completing the Free Application for Federal Student Aid. This program is available to full-time undergraduate students.

### **Outside Assistance**

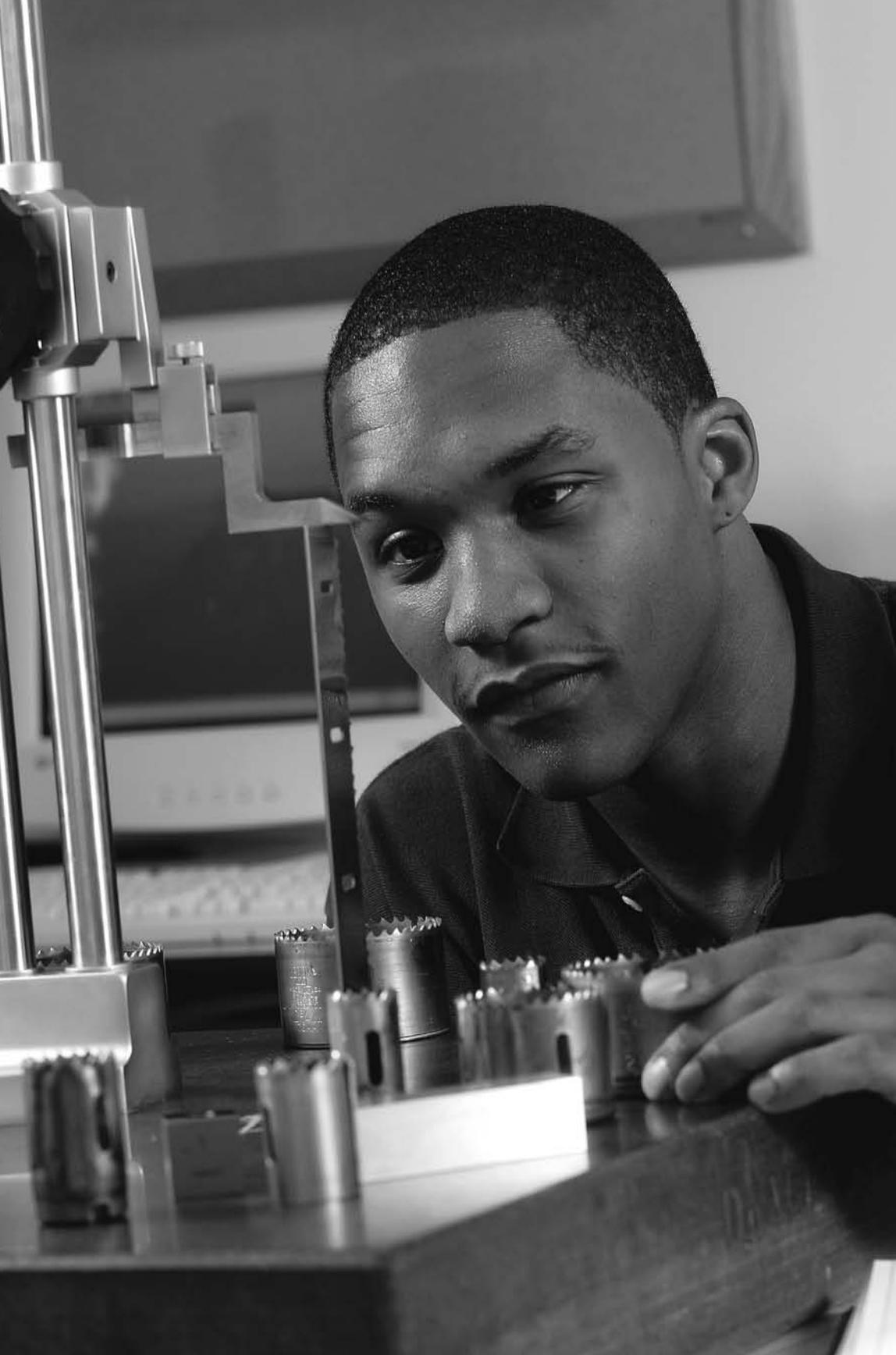
Many scholarship and financial assistance programs are available to deserving students through local and state civic groups, clubs, and organizations. Students are urged to seek out such programs in their local areas. Student Administrative Services also has several external scholarship publications for students to utilize. One may reference on the Internet ([www.finaid.org](http://www.finaid.org) or [www.fastweb.com](http://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 \$30,000 per year. 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 College 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 College 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 College 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 College 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;
- School or division of enrollment;
- Major field of study;
- Date and place of birth;
- Dates of attendance at Western New England College;
- 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 College 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 College.

## 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 College, 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 ten 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 ten days after the first day of classes without the required verification.

Furthermore, effective August 2005, recently enacted Massachusetts General Laws, Chapter 76, § 15D 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 1 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 College is committed to the principle of equal opportunity in education and employment. The College does not discriminate on the basis of sex, race, color, creed, national origin, age, religion, sexual orientation, 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 College's nondiscrimination policies:

The Executive Director of Human Resources and the **CareerCenter**  
Western New England College  
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 College adheres to the stipulations of this Act. Also please see Student Disability Services on p. 307. 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 College 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 College 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 College policy and will not be condoned or tolerated. Not only is sexual harassment a violation of College 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 **CareerCenter**, 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 College. 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 1988, the College is in the process of establishing smoke-free student housing. At present, all residence facilities except for the Evergreen Village townhouses and Gateway Village apartment complex are smoke-free living environments.

## **Student Right-to-Know and Campus Security Act (Clery Act)**

The College 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 College's policy to provide information concerning security services available on campus. The College also practices the policy of notifying the College 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 College'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 College community may obtain information provided by the Commonwealth of Massachusetts as to any registered sex offender who may be enrolled or working at the College 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 College 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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Product Manager – Paper Products  
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## **ENROLLMENT MANAGEMENT**

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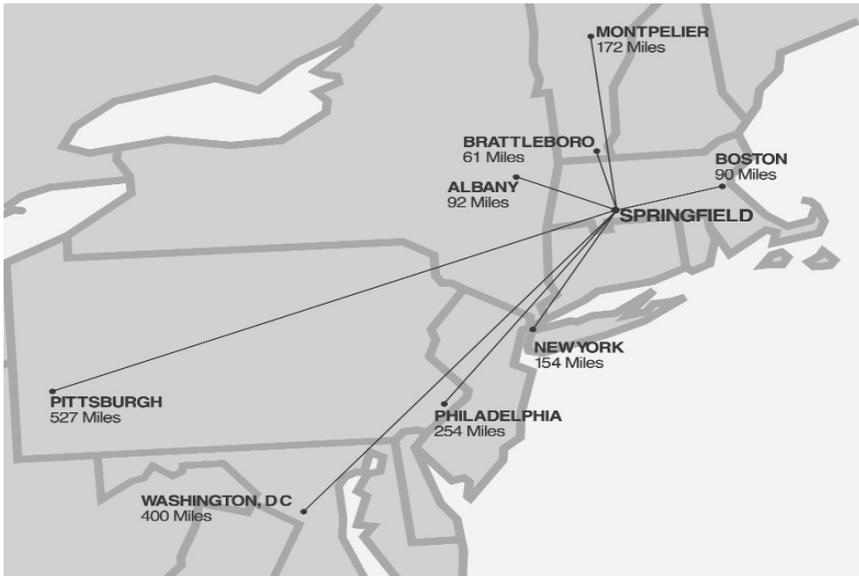
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## REGIONAL MAP



## **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 Avenue 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 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 traffic light, turn left onto Roosevelt Ave. Take Roosevelt Avenue 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 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 traffic 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 Rd. and turn right. Travel 0.2 miles and turn right, into the parking lot of the Welcome Center. (Total 5.7 miles from I-91.)





